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VOL. 2.—No. 4.

ST. LOUIS, OCTOBER, 1893.

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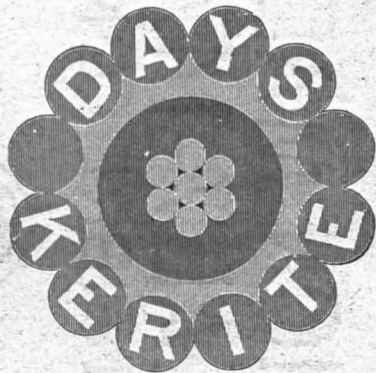
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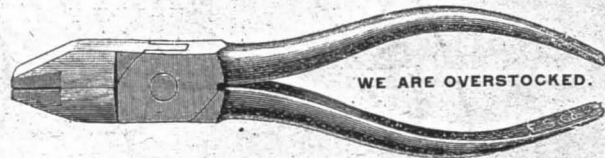
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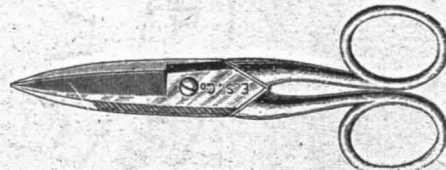
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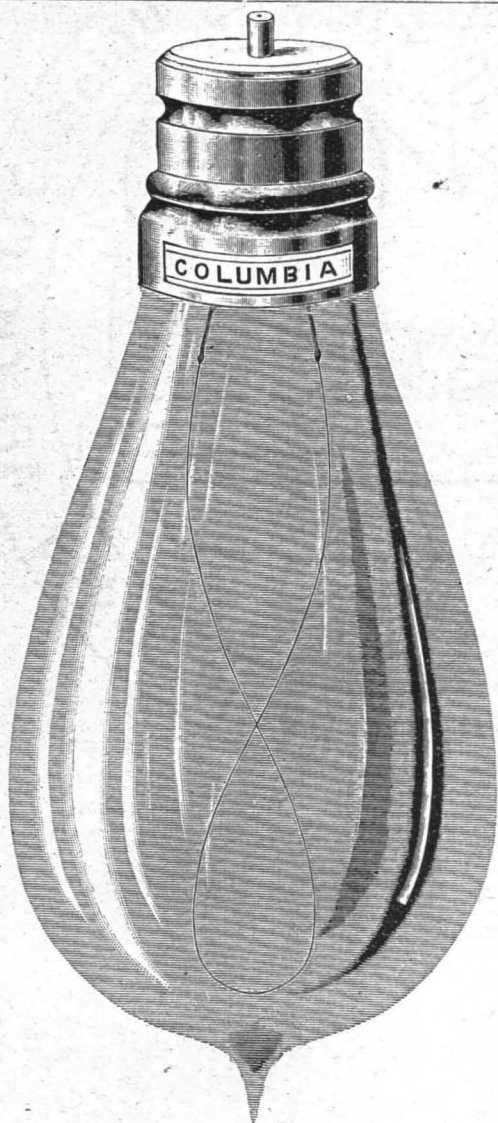
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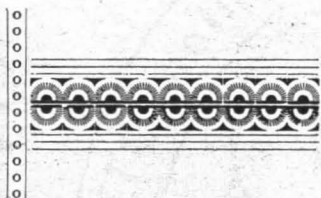
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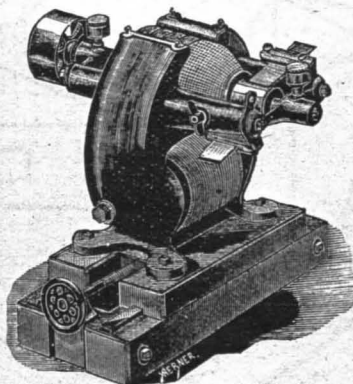
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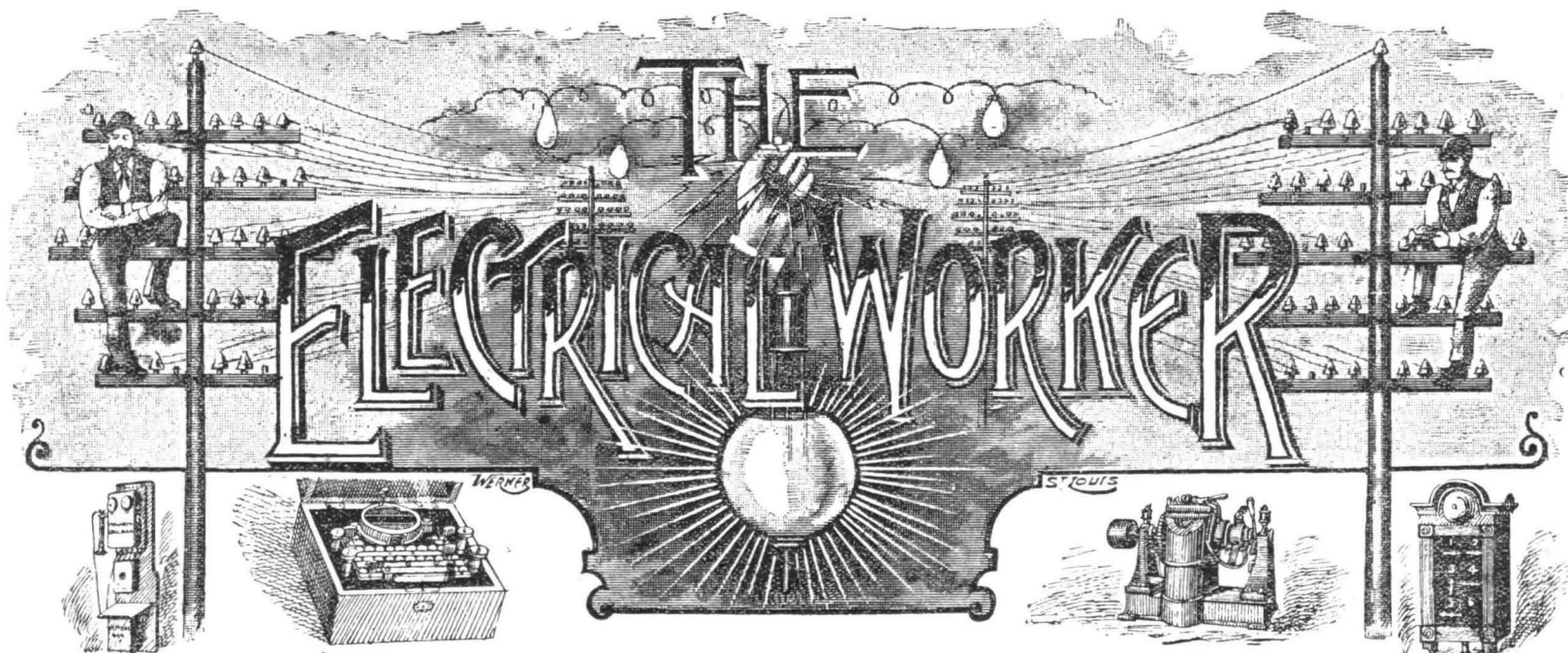
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Electric Power Transmission.*

[By Prof. George Forbes.]

I feel that before such an assembly it is a very fitting time that one should say a few words about one of the great works on which I myself have been engaged, and the history of the progress in connection with that work and the condition of affairs at the present moment in the way of utilizing the Falls of Niagara. A great deal of time and thought has been given to selecting the best system to be adopted for this work, and for a long time the question was open whether the power should be

then was whether the power should be transmitted to the workshops requiring power by compressed air, by rope transmission or by electricity, and I may say that for a long time there was a great preponderance of opinion in favor of compressed air. Finally we have all to congratulate ourselves that the resolution was adopted to do the whole of the transmission by means of electricity.

In the year 1890 a number of plans were invited from different engineers and manufacturing firms as to the best means of utilizing this power. These plans were submitted before an international congress consisting of members well known in the en-

then that the work should be done by alternating currents generated in two phases; that these should be sent along separate circuits at high voltage; that the transformers should be used for reducing the pressure down and introducing a safe pressure into the workshops; that in the workshops synchronizing alternating motors should be used in some cases, and that in other cases two-phase motors should be employed, and that in the cases where the direct current was necessary, alternating motors should be used to drive continuous current dynamo machines. That was in the year 1890, and in the present year, 1893, there is hardly a change to be made upon that system, which has been proposed. In the interval, however, we have been only too anxious to hear all that could be said in favor of every system, and I, myself, have felt a perfectly open mind in the matter since my having expressed an opinion in 1890; in fact, I would not have had the least shame, in view of the rapid progress made during those three years, in changing my views entirely, and to have said that the continuous current was the best for the purpose. At the time when that international congress was held, there was an attempt made among the members of the commission to pass a resolution which was to be transmitted to the Cataract Construction Company, informing it that the alternating current could not be used for the purpose. At the present moment every member of that commission has changed his views, except perhaps one. I have mentioned the chief objections to the use of continuous currents for the transmission of power at Niagara Falls. There are many cases where the continuous current is the most desirable to use for transmission of power. The chief disadvantage is the necessity of putting all the motors in series at the receiving end of the line. But in all these cases that come before the practical engineer, the most important thing to consider is the question of cost. It is fortunate when we find that the best harmonizes with the cheapest, as sometimes happens in great engineering works, and as I am glad to say, it has happened in the case of this great work of the utilization of Niagara Falls. After the congress closed its labors and when electricity was decided upon for the purpose, proposals were solicited. All the greatest firms in the world were asked to submit plans for dealing with this problem. Some were continuous currents and some were alternating currents. The greatest difficulty was experienced in nearly every case by those who were proposing continuous currents to meet the requirements in any way whatever, and in every case the cost was largely in excess of the cost with alternating currents. One of the things which we have decided upon is that we are to use the same system for distant transmission as for near by transmission. Nearly every person, when they have begun to tackle this problem, has thought that it was desirable to use a lower voltage for the near by transmission. One or two thousand volts seemed to be all that was desired when you were only transmitting a distance of a mile or two, whereas 10,000 or



Exterior View of the Atlantic Ave. R. R. Co.'s Power House after the Explosion.

used directly by wheel pits communicating with each separate mill that was going to take the power. It was a resolution of the deepest importance which was arrived at by the president of the Cataract Construction Company when, after having inspected all that was being done in Europe, and knowing all that was being done in America in the way of transmission of power, he telegraphed to the New York office that it must be a question of starting central stations at the Falls of Niagara. That was the first step that was taken. The question

engineering and electrical world of all countries, who met in London at the beginning of 1891. At that time there was one report which used these words: "It will be somewhat surprising to engineers in general, as it was to myself, to find that the only possible means of transmitting this power to Buffalo and the best means for using it in the neighborhood of the Falls, is by means of the alternating current." I made that statement in my report after having considered carefully every means which was then available. I am glad to say that I have never had any reason to change my opinion from the year 1890 to the present day. I proposed

* Abstract from a paper read before World's Electrical Congress.

20,000 volts was considered nearer right for the distant transmission, but the advantages which we gain by using the higher pressure to a great distance are also gained in the near by distribution. Moreover, in all these cases it is almost impossible to grasp the full conditions of the problem until you come down to the details. Suppose you do start with 1,000 volts for a distribution, say of the first 50,000 horse-power in the neighborhood of the falls, you will find that the mass of conductors that you have to deal with is something simply impossible. The most convincing argument that I was able to adduce on this point was by drawing a full scale section of a subway carrying the conductors, which would be necessary for 50,000 horse power, and it filled a large subway through which a man could walk. It filled that subway up with conductors in such a way as to show, without any further demonstration, that it was impractical.

I am glad to feel that the universal opinion is in favor of the adoption of the alternating currents. I can only quote one man of any eminence who seriously and persistently considers that it was the greatest mistake to use the alternating current for such a purpose. I will not mention the gentleman's name, and it is a very well-known name, one that bears the greatest influence, so great influence that I and those with whom I have been associated have considered with the utmost care every single point in the matter before rejecting the advice that has been given us. The opinion was

and to show how thoroughly convenient it is. There are several specimens of them at the World's Fair. These machines involve the rotation of a full-sized armature with all the losses involved in the armature of a dynamo machine, and consequently they add to the general loss of the system a loss of say 10 or 15 per cent. It seems to me as if the world is sufficiently advanced in the application of electricity to be able to devise a commutating machine which shall simply do the act of commutating a current without this great loss of power. It is a very desirable aim to have machines at a distance from our generating station to work our street railways, which at present are worked by continuous current. If we can carry our high-tension alternating current to a distance; to Buffalo, Rochester, Utica, Syracuse, Albany, transform it down to a low pressure and then commute it by a simple commutator that is not absorbing power to an appreciable extent, we have a valuable adjunct to our machinery. This is one of the possibilities which is almost certain to arrive in the course of a few years, and which we must look forward to and not leave out of account.

You have heard of the numerous attempts that have been made to devise single phase alternating current motors which can be put upon our lighting circuits. These have not been entirely successful, but we have seen lately, in Switzerland, the successful construction of such a motor which can be put on such circuits as are ordinarily used for

stations which have to be supplied from Niagara Falls for the purposes either of traction or of arc lighting there are existing companies at present doing that work. They have got steam engines driving their dynamos, generating currents for these street railways and for these arc lamps. What they want us to do first is to throw out the steam engines, put in motors to drive those dynamos which they have there, not to throw away the whole plant; therefore, these at present come under the consideration of the power stations which have to be supplied. But we shall have to deal with arc lighting systems, and if we can get the direct current easily and satisfactorily from the alternating current, it is a very desirable thing to aim at.

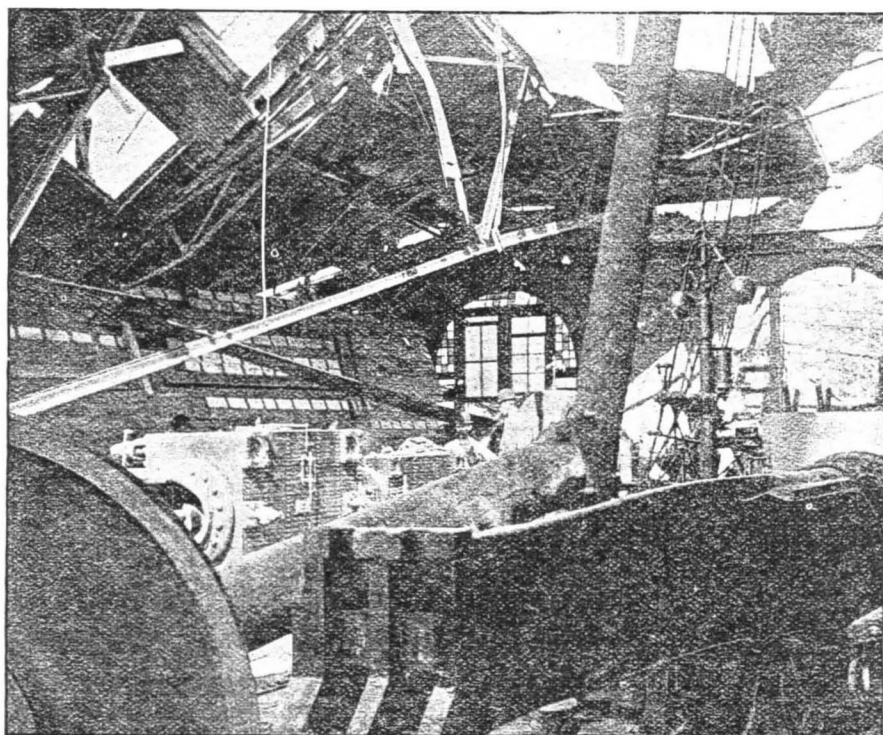
Mr. Farranti has been at work during the last year in developing a combination of a transformer and a simple commutator which shall convert the alternating current into the continuous current, whose value is constant, a current of 10 amperes or 15 amperes or whatever we may fix upon; and this commutator of his is not one of those commutating engines which we have seen here, but it is simply a commutator which is not absorbing power to a large extent in an armature like the other machines. It is a simple commutator and it is working well, and I have great hopes that it may be developed in the near future.

While telling you what we are doing at Niagara Falls I have only felt that it was right that I should put before you these possibilities of the future, because it is only right that we should consider most carefully what developments are likely to take place in the next few years, and we ought to provide that the machinery which we put down shall never be obsolete. In the meantime, for reasons which I have mentioned, we saw a decided preference among the different systems of polyphase transmission and transformers in favor of a system in which the lines are not inter-connected. That system, when most simply produced, is the two-phase system with two independent circuits, one for each phase. We are going to have dynamos made in two phases, not only because we want to avail ourselves of old developments in this line of working that manufacturers can offer us, but also because we get our single-phase circuit cheaper than if we built the machine with one phase instead of two phases. If we use only single-phase motors we get a larger output from the same machine by building it of two phases than building with one phase. This was appreciated as early as 1879 by a man whose name we all honor so much in connection with the development of electric work, M. Gramme. M. Gramme's first alternating current dynamos were in two phases—eight poles and two phases—with a revolving field and a fixed armature.

As to the motors which we shall be using, we shall be using synchronizing motors of single phase, polyphase motors, and sometimes, no doubt, converting into continuous current and using continuous current for street railways.

There were a good many special features in connection with the Niagara project which rendered special features in the design of dynamos desirable, and which naturally will differentiate the dynamo which is to be used there from those which have been in more ordinary practice, but I venture to say that there will be no serious departure in the dynamos which are put down from the ordinary lines, which we have found to be perfectly satisfactory in the past. One of the features is that we have a vertical shaft instead of a horizontal shaft. As you are all aware, the water of the Niagara River is taken off one mile above the falls by a large canal. It is then taken by tunnels into the wheel pits and sent down on penstocks to a depth of 140 feet to the turbines below. The water, after passing through the turbines, is carried down through the great tunnel, which is an engineering work to be proud of. On the top of the turbines they have a vertical shaft coming to the surface of the ground, and that shaft, rotating at 250 revolutions a minute, causes the large dynamos to revolve directly on the same shaft without any gearing whatever at the same speed.

It has been proposed in many cases to generate the current at low voltage and use a step-up transformer to create a higher voltage. There are two objections to this. The first is that we have the cost of the transformer. The second is that we have the extra losses in the transformer. If it is possible to create the whole voltage that we require in the dynamo instead of in a transformer, we save the cost of a transformer, which is approximately about the cost of the dynamo, and we are saving some 3 per cent of efficiency. It means 150 horse-power in each of our units. Our units are 5000 horse-power. That means so much more earning capacity, so much more rental. Suppose you put that at \$20 per annum, and 150 horse-power, that is, \$3000 per annum is saved. Three thousand dollars per annum, capitalized at 5 per cent, would be \$60,000. By saving 3 per cent you save more than



Interior View of the Atlantic Ave. R. R. Co.'s Power House after the Explosion.

stated in a general way, but the concrete way in which it was stated by this authority was that on the top of our vertical shafts which come from the turbines, we should have a building four stories high for each turbine. Each floor should be insulated completely from the rest of the building. At each floor there should be a large toothed wheel driving five other toothed wheels, on each one of which should be a dynamo of vertical shape. We should thus have 20 dynamos, each of 1,000 volts, all continuous current dynamos and all connected in series. That plan we have considered most carefully, owing to the source from which it came, and we have rejected it. We are now going ahead with the alternating current, and at every point the question of cost has been considered, and the results which we have arrived at I believe are the best, and I may also say that they are certainly the most economical.

I will speak of a few other of the possibilities which are immediately before us and within our sight at the present moment and which there can be little doubt will be available to us in the course of the next few years, but which it would be unwise entirely to depend upon at the present moment. Among these it will be said that I am very careful, perhaps, if I include those commutating machines which have been given the name of rotating transformers, a misleading term, but machines which communicate the alternating current into the continuous current by the rotation of the armature. This machine was first prominently brought before the world at Frankfurt in 1891, and chiefly by the firm of Schuckert & Co. It has been introduced in America for experimental purposes

lighting purposes, and this even when the frequency of alternations amounts to 133 periods per second. Such motors have been produced which work efficiently on those circuits, but there are a large number of motors which, although not quite successful on this high frequency, at some lower frequencies are very efficient and satisfactory. I need not mention the names of all the inventors who have been at work in this direction, for they are countless, and I have seen with my own eyes and worked with my own hands machines of this class of a great number of different types, all capable of doing good work on a rather lower frequency than has been used with the lighting circuits in this country.

There is also a type of machine which I proposed for adoption as a possibility in the future, with alternating currents, in the year 1883, and that is the direct current motor with a laminated field, and that also has a certain amount of possibility in the future; at any rate, with lower frequency than we have been using. There are some difficulties in its use, but such men as Eickemeyer, Prof. Anthony, Tesla and other gentlemen have been engaged upon work in this direction, and it has promise for the future.

Now, another of those things which are promising for the future is the question of arc lighting. At the present moment we could use the alternate current for arc lighting. It is being used for arc-lighting in Europe. At the present moment in this country it has not been so very largely used for arc lighting, and most of us are of opinion that the continuous current arc lamp is more successful than the alternating current arc lamp. In the first

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the whole plant and the station connected with this work, the dynamo and the whole thing. When we reduce these things down to figures we see what value a high efficiency is to us. Now, I maintain that by following the example set by Gramme, of having the armature fixed, it may be a little extra expense, but nothing like the expense of putting in an extra transformer. The fixed armature becomes a thing as easy to handle and as safe to handle as the transformer itself, and you can introduce your very high pressure into that armature with the same safety that you can introduce it into the transformer.

It has been an anxious consideration as to whether the transmission ought to take place by overhead conductors or by means of a subway; also the question of laying underground cables in a conduit has been considered. I make a distinction between a subway and a conduit thus: I consider that a conduit is a place for putting cables in. I consider that a subway is a place for putting cables in where a man can walk along and inspect them. Obviously the most complete and satisfactory method would be to put a subway wherever you want to carry these high tension mains, and the cheapest way is obviously to put a pole line all the distance, and the intermediate way is to put a conduit of cables underground. The intermediate way is, as often happens when we try to strike a mean course, disastrous. One of the greatest troubles which is likely to come to this work is the trouble arising from the capacity of the line. It was said of the high tension transmission at 10,000 volts between Deptford and London, which was for so long a time an experiment, that there were two things to consider in connection with the cables: first, their capacity, and secondly, their incapacity. Their latter defection, I am glad to say, according to the latest advices, disappeared entirely from knowledge acquired as to how to deal with the first defect. Now that the capacity of these cables is handled in a proper manner, in a scientific way, there is no trouble. But capacity is always apt to lead to trouble, and ought to be avoided in this case in the cables, and for that reason it is undesirable to have insulated cables acting in this manner; consequently the work will be done either by overhead conductors, bare wires, or by bare wires carried in a subway. Naturally, the cost of a subway to Buffalo is a very serious thing. The first place we have to supply with power is the Pittsburg Reduction Company in the manufacture of aluminum, which is at a distance of 2,500 feet from the power house, and we have also to proceed almost immediately to Buffalo. Later on we have to meet the agreements which have been made to supply places along the Erie Canal, and since the State of New York has taken up experiments on the possibility of having the towage on the Erie Canal conducted by means of electricity, we have to consider the question of transmitting electricity over the whole of that distance. I may express a purely personal opinion that the action of the State of New York in this direction is an action of the very highest importance; that it is likely to revolutionize traffic in the State of New York; that the volume of transportation over the Erie Canal will be such as to benefit manufacturers in all parts of the State, and more especially those in the neighborhood of Buffalo and the falls. This work takes us ultimately to a distance of 350 miles. This involves high electric pressures and it involves the consideration of the expense of laying our line.

I have lately had occasion to deal with a similar problem in India. The Indian government has lately been irrigating the eastern side of the Nilgherry Hills by means of the rivers on the western side of these hills and driving a tunnel through the mountains to carry water to irrigate land. They found that when the water was carried through a tunnel at an elevation of 1200 feet within a mile and a half before they wanted to begin to use the water for irrigating purposes, they had sufficient water to develop 50,000 horse-power. They had been considering the question of generating electricity and I have had to look into the electrical question. In that case the greatest development of electrical power and lighting would be at the town of Madras, which is 350 miles from this place, but still, according to the best information that we are able to collect on what has been done at high voltage, it seems almost certain that this power can be carried that distance and delivered at Madras, as one of the cheapest forms of power in the world, because all the hydraulic works are already created, and their sluice gates and everything prepared, and they have simply to put in the transmission plant.

The transmission from Niagara Falls to Albany is almost identical with this. The distance is the same, and when we come to supply this canal we shall have to consider the question whether overhead poles are possible. In the meantime it will be desirable to have some experiments made upon overhead construction, but

in this climate there are very great difficulties. The two most serious difficulties that have to be contended with in connection with transmission for an overhead line are, first, those due to lightning, and second, those due to sleet. The sleet trouble is a very serious one, especially in the northern climate. Broadly speaking, the conclusion which it seems we must arrive at is that a transmission by overhead conductors must, in the nature of things in that climate, be liable to occasional interruptions, and that the electrical subway is almost certain to be carried out without interruptions, giving a continuous circuit. This makes one naturally favor the subway system. But experiments will be carried out with the pole system undoubtedly, and I have to conclude by making one statement, which I think ought to be a matter of congratulation to all of us who are interested in seeing such a scheme successful, and that is that the subway, at any rate part of the way, has been begun. Last Friday the first sod was turned for a subway which is going to carry the conductors from the power station at least as far as the Pittsburg Reduction Works, which is half a mile distant from the power house.



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The National Automatic Fire Alarm system consists of a combined annunciating and test box, a multi-contact thermostat and an automatic repeater. The thermostats are placed upon the ceiling at intervals of 16 feet on each floor from basement to top floor and are connected by three wires—two house and one section wire. The system is so arranged that should a fire occur in any part of a building the alarm will be transmitted automatically through the central office of the Automatic Company to fire department headquarters, giving the fire department the exact building and the floor of said building where the fire originated, and will do this within a minute from the time the fire originates. The system is under constant test. Should any trouble occur a trouble alarm is automatically sent to the central office, and capable men are at once sent to repair same. But should any trouble, such as breaking of wires, short circuiting or grounding of same occur, the service is not in the least impaired, as a fire would announce itself under any of the above circumstances, as it is a double circuit system, and should anything become the matter with the metallic circuit, through a combination of circumstances this system is thrown on the ground circuit.

The Fly-Wheel Flew.

BROOKLYN, October 12, 1893.

Editor *Electrical Worker*:

At 7:20 last evening there was quite an excitement on Third avenue, caused by the bursting of a fly-wheel in the power-house of the Atlantic Avenue Railroad Company.

Your Photo Fiend was at the wreck at an early hour this morning and secured a few snap shots, two of which I send you. Only those who have visited the place can imagine the scene.

The power-house is located on Third avenue. A branch of the Gowanus Canal is on the north, and a vacant lot of many acres stretches out to the south, with Third street on its further edge.

The power-house is 60 feet wide by 200 feet long. It faces to the east. It is a high-roofed, one-story brick structure. Its roof is supported by iron trusses resting upon iron girders in the wall.

There are, or were until 7:20 last evening, eight Corliss engines of 500 horse-power each, standing side by side along the length of the building. The work of generating electrical power for the running of 135 trolley cars on Atlantic, Washington, Fifth and Seventh avenues and the other lines of the company required the co-operation of three of these engines.

Each engine has a fly-wheel 20 feet in diameter with a 60-inch face and weighs about 9000 pounds. A 50-inch belt connects the fly-wheel with a 5-foot pulley on the counter shaft which connects with the dynamos. The engines are gauged to run 82 revolutions per minute, but evidently the governor got out of order last evening and let one of the engines run wild.

There were a dozen men at work in the power-house when suddenly there came a report louder than a clap of thunder, a cannonade and a collapse of a building combined.

To the south of the power-house the spokes of the driving-wheel were dropped all along the way, the furthest flight being that of a 200-pound fragment that landed in the coal yard of Schroeder & Horstmann, on the south side of Third street, and more than a quarter of a mile away.

Another fragment, half of a spoke, struck and crushed in the foundations of the coal office and lies half buried in the earth to be admired by the wondering visitors to-day. The office had been closed for the night.

The power-house itself was split into two parts by a gap twenty feet wide, the explosion carrying away the brick walls and roof and scattering the fragments in the vacant lot on one side and the canal on the other.

The explosion also disconnected the dynamos from the other engines and 135 trolley cars on the various lines of the Atlantic Avenue Company came to a sudden standstill.

For last night the Brooklyn City Railway Company loaned enough power to the Atlantic Avenue Company to operate most of its lines, and to-day the connections have been readjusted and the cars are running as usual, though with less power.

Fortunately no one was killed by the accident, although a few persons were more or less seriously injured. The escape of several families living in a tenement just across the canal, about forty yards distant, was almost miraculous, as several large fragments of the wheel, weighing about 600 pounds each, crashed into the house and caused a total wreck of the building. Mrs. Marshall and family and Mrs. Keegan and family were in the house at the time.

The loss will be about \$50,000.

Electrical Progress in the Future.

Mr. Arthur Abbott, in a current number of Frank Leslie's Magazine, after reviewing the progress made in applied electricity during the seventeen years from the Centennial to the World's Fair, concludes as follows in regard to what we may expect in the near future:

What of the future? Will the next seventeen years see so complete and radical a revolution? Will 1910 gaze at our magnificent machinery with the same pitying toleration and good-humored smile of contempt with which we now recall the efforts of 1876? Possibly; for American ingenuity firmly believes that "there is no such word as fail." However, the circumference of the race is a very small one, and even the forces of our universe are by no means infinite; and while every invention opens new possibilities, it also narrows to a certain extent the possible field of future discovery. The dynamos of to-day have an efficiency of 95 per cent; that is to say, they are so perfectly designated as to convert 95 per cent of the mechanical energy delivered to them into electricity, leaving only 5 per cent accounted for by friction and other wastes. Indeed exceptional machines have been made in which the loss has been reduced to $2\frac{1}{2}$ per cent. It is probable, nay, certain, that many mechanical details will be vastly changed and improved; yet it is equally sure that there is no hope of materially increasing the general value of the performances of these machines. Notwithstanding our splendid success in electric lighting, both the arc and the glow lamp are very wasteful devices, returning as useful light rays not more than 15 per cent of the energy given them by the dynamo. Mr. Tesla's experiments point toward the probability of a very notable improvement in this direction, whereby electric illumination may be rendered much more agreeable and vastly cheaper than it is at present.

For all electrical service we are now accustomed to consider a complete conducting circuit as absolutely necessary. Here the researches of Mr. Tesla, Dr. Herz, Mr. Preece, and others, show that lamps and motors may be successfully operated with only one wire, or indeed, with no wire at all. Thus these investigators show that from every source of electrical action electro-magnetic pulsations radiate outward through indefinite space, and may by suitable mechanism be made to impress themselves upon a receiving instrument; and already intelligible messages have been transmitted across more than five miles of space without the aid of any wire, or other conducting circuit, simply by means of electro-magnetic waves impelled through the luminous ether. Thus, compared to the possibilities so opened to the imagination, the present method of telephonic communication sinks into insignificance.

There is yet another goal, towards which many eyes are eagerly and hopefully turning, whose attainment is perhaps no more chimerical than was the telephone a score of years ago; one whose glittering prospects are sufficient to kindle into enthusiasm the most lagard imagination, and yet the attainment of which is beset with trials and difficulties so formidable as to daunt the most courageous. Happy will be the man who shall discover a way to convert heat energy directly into electricity without the losses entailed by the present necessary but wasteful steam engine. To him shall indeed be given the empire of the air, and all the kingdoms of the earth shall be at his feet. As a benefactor of the race his work will be without parallel, and honor and wealth without measure will be his portion.

Without serious error it may be stated that, setting aside animal force, all the energy of civilization is derived either from waterfalls or from the combustion of fuels; and of these two sources the latter is by far the most important. To obtain mechanical power it is usual to resort to the steam engine, whereby the energy developed by the burning of the combustible in the furnace is, through the medium of the elastic force of steam, transformed into rotary motion in the fly wheel of the engine. Unfortunately, by this process it is possible only to change a very small fraction of the energy set free by the burning of the fuel into useful work; the remainder, by unavoidable losses, is dissipated beyond recovery. Nor will it ever be

possible very greatly to improve the present efficiency of the steam engine. When a pound of coal is burnt in the furnace of a steam boiler about 75 per cent, under the best conditions, of the energy set free by combustion is absorbed by the water in the boiler and stored up in the steam produced. Of the remaining 25 per cent a part is wasted in the smoke and hot gases escaping from the chimney; some is used to heat the necessary air supplied for combustion, and the remainder is radiated from the sides and walls of the furnace and boiler, or lost in incomplete combustion and the wastes of the ash pit. Of the 75 per cent stored in the steam 20 per cent is transformed in the cylinder into mechanical work; the remainder, 55 per cent, passed away in the exhaust steam, inevitably and irretrievably eluding all attempts to save and change it into useful work. Of the 20 per cent secured by the cylinder, from 3 to 5 per cent is expended in overcoming the friction of the various moving parts of the engine, leaving, under the most favorable circumstances, only 15 to 18 per cent of the real heat value of the fuel as deliverable in the form of useful work by the engine. In a majority of cases, by either bad design or improper loading, this proportion is reduced by one-half; so that a most sanguine estimate can not credit the average steam engine with an efficiency of more than 8 or 10 per cent. In comparison with modern dynamos hav-

into sound in the currents of the telephone wires. Thus, through an endless series of changes, energy is constantly disappearing from one form, only, Proteuslike, to reappear under another familiar, though totally dissimilar, guise. To obtain electricity we at present resort to the stores of energy locked up in the fuel supplies, transforming the force obtained by the chemical union of combustion into mechanical motion of the steam engine, and thence, by the aid of the dynamo, into electric current. Could this round-about method be avoided, so burdened with irremedial wastes—could some mechanism be devised with the efficiency of the present dynamo, taking the heat energy of the furnace and transforming the same immediately into electricity, the aspect of civilization would be revolutionized. Heat can indeed be directly converted into electricity, but none of the present devices are commercially successful. Evidences, however, are not wanting of the ultimate feasibility of this most desirable discovery, though it may not be immediately forthcoming. This would afford at least one solution of the problem of aerial navigation. When the consumption of an ounce of coal shall yield a horse power everyone may strap to his back a flying machine and flit whithersoever he chooses, traversing the continent with the speed of our present express trains, with as little inconvenience as is now entailed by a morning walk.

Is this an electrician's dream? Perhaps so; and yet Morse and Bell dreamed so effectually and so vividly as to revolutionize within their own lifetimes the intercourse of the globe. Why, then, may not the visions of others be equally purposeful?

The Action of the Eye.*

[Nikola Tesla.]

It can be taken as a fact, which the theory of the action of the eye implies, that for each external impression, that is, for each image produced on the retina, the ends of the visual nerves concerned in the conveyance of the impression to the mind must be under a peculiar stress or in a vibratory state. It now does not seem improbable that, when by the power of thought an image is evoked, a distant reflex action, no matter how weak, is exerted upon certain ends of the visual nerves, and, therefore, upon the retina. Will it ever be within human power to analyze the condition of the retina when disturbed by thought or reflex action, by the help of some optical or other means of such sensitiveness that a clear idea of its state might be gained at any time? If this were possible, then the problem of reading one's thoughts with precision, like the characters of an open book, might be much easier to solve than many problems belonging to the domain of positive physical science, in the solution of which many if not the majority of scientific men implicitly believe. Helmholtz has shown that the fundi of the eyes are themselves luminous, and he was able to see, in total darkness, the movement of his arm by the light of his own eyes. This is one of the most remarkable experiments recorded in the history of science, and probably only a few men could satisfactorily repeat it, for it is very likely that the luminosity of the eyes is associated with uncommon activity of the brain and great imaginative power. It is fluorescence of brain action, as it were.

Another fact having a bearing on this subject which has probably been noted by many, since it is stated in popular expressions, but which I can not recollect to have found chronicled as a positive result of observation, is that at times, when a sudden idea or image presents itself to the intellect, there is a distinct and sometimes painful sensation of luminosity produced in the eye, observable even in broad daylight.

Two facts about the eye must forcibly impress the mind of the physicist, notwithstanding he may think or say that it is an imperfect optical instrument, forgetting that the very conception of that which is perfect, or seems so to him, has been gained through this same instrument. First, the eye is, as far as our positive knowledge goes, the only organ which is directly affected by that subtle medium which, as science teaches us, must fill all space; secondly, it is the most sensitive of our organs, incomparably more sensitive to external impressions than any other.

This divine organ of sight, this indispensable instrument for thought and all intellectual enjoyment, which lays open to us the marvels of this universe, through which we have acquired what knowledge we possess, and which prompts us to and controls all our physical and mental activity—by what is it affected? By light! What is light?

It is beyond the scope of my lecture to dwell upon the subject of light in general, my object being merely to bring presently to your notice a certain class of light effects and a number of phe-

* Abstract from Address before Franklin Institute, Philadelphia.



PETER F. HEALY, FIRST GRAND VICE-PRESIDENT.

ing a capacity to transform 95 per cent of the mechanical energy imparted to them into electrical energy, the steam engine does indeed seem a very wasteful contrivance; and, unfortunately, it is impossible to expect a very large or radical increase over the present efficiency. Theoretically, a little less than half an ounce of coal should produce a horse power. Actually, steam engines take four pounds to develop this energy.

The greatest scientific attainment of this century was the discovery of the correlation of energy, which informs us that all the forms of force with which we are acquainted, such as light, heat, sound, electricity, chemical action, the attraction of gravitation, and mechanical motion, are mutually interconvertible, so that any manifestation of force can be transformed in any other form; and could the inevitable friction wastes of mechanisms be avoided the change would be accomplished absolutely without loss. Familiar examples are not wanting. The coal on the grate bars enters into chemical union with the oxygen of the air, producing heat, which is absorbed by the steam. In the cylinder of the engine the heat energy changes into the mechanical rotation of the wheel, which by the aid of the dynamo reappears in an electric current, that is again transformed into heat and light in the incandescent lamp, into chemical action in the vat of the electroplater, into mechanical work on the shaft of the electric motor, and

nomena observed in pursuing the study of these effects. But to be consistent in my remarks it is necessary to state that according to the idea now accepted by the majority of scientific men as a positive result of theoretical and experimental investigation, the various forms of manifestation of energy which were generally designated as "electric," or more precisely "electro-magnetic," are energy manifestations of the same nature as those of radiant heat and light. Therefore the phenomena of light and heat, and others besides these, may be called electrical phenomena. Thus electrical science has become the mother science of all, and its study has become all-important. The day when we shall know exactly what "electricity" is will chronicle an event probably greater and more important than any other recorded in the history of the human race.

[Part II., continued from Sept. number.]

FRICTIONAL ELECTRICITY.

Electricity of Rubbed Glass—Production of Electricity by Steam Escaping Through Narrow Passages, and the Conducting Power of Certain Substances.

By J. M. BERGER, Press Secretary 26.

In continuation of my article in the September number I would state that in experimenting with escaping steam, I found that if I used a wooden tube as an exciter, and applied some olive oil to its inner end, or that at which the steam enters, I found that my boiler became positive, and the issuing steam became negative. I also found that if I applied the oil to the outer end of the tube that my boiler became negative and the steam jet positive. I screwed a simple exit tube into my steam globe, and found that the oil produced the same effect as before, after I had put some oil upon the water in my steam globe; but if I had no water in my steam globe, only oil, I found there would be no development of electricity. I found, too, by experimenting that lard, spermaceti, beeswax, castor oil and resin dissolved in alcohol and laurel oil act the same as olive oil or turpentine.

I also find that when the oil spreads in thin films upon the surface of the water that the addition of acid or salt, which in other cases prevents any excitement of electricity in the presence of oil does not have this effect; that is, when oil is in the escape tube electricity is developed if the water is slightly acid or saline. I found, too, by experiment, that the following different substances also excited electricity in my exit tubes: Flour of sulphur, for instance, made wood and iron negative, while pulverized quartz made both positive. Other substances, such as pulverized resin and gum, gave variable results in my tests.

The following is a list of substances that are conductors, semi-conductors and non-conductors.

The conductors are as follows:		Semi-conductors are:
All kinds of metals,		Alcohol and ether,
Well-burnt charcoal,		Powdered glass,
Graphite,		Flour of sulphur,
Acids,		Dry wood,
Aqueous solutions,		Paper,
Water,		Ice at 0°.
Snow,		
Vegetables,		
Animals,		
Soluble salts,		
Linen,		
Cotton.		

The non-conductors are as follows:

Dry oxides,	Lycopodium,	Dry paper,
Ice at -25° C.,	Caoutchouc,	Silk,
Lime,	Air and dry	Diamond and
Glass,	dry gases,	precious stones,
Wax,	Sulphur,	Resins.
Amber,	Shellac,	

These bodies have accordingly been divided into conductors, semi-conductors and non-conductors. This distinction is not absolute, however, and we may advantageously consider bodies as offering a resistance to the passage of electricity which varies with the nature of the substance. Those bodies

which offer little resistance are, then, conductors; and those which offer great resistance are non-conductors or insulators. Electrical conductivity is thus the inverse of electrical resistance. We are to consider that between conductors and non-conductors there is a quantitative and not a qualitative difference; there is no conductor so good but that offers some resistance to the passage of electricity, nor is there any substance which insulates so completely as not to allow some electricity to pass through it. Now the transition from conductors to non-conductors is so gradual that no line of sharp demarcation can be drawn between them. In this sense we are to understand that bodies which are classed as conductors, semi-conductors and non-conductors; those bodies being conveniently designated as conductors which, when applied to a charged electroscope discharge it in a short but measurable time, a few seconds, for instance; while non-conductors effect no discharge in the course of a minute. The foregoing list is arranged in the order of decreasing conductivity, or, what is the same thing, of increasing resistance. This arrangement is not invariable,

electrified bodies lose their electricity more or less rapidly by means of the insulators on which they rest. Glass is always hygroscopic, and the aqueous vapor which condenses on it affords a passage for the electricity to escape; the insulating power of glass or porcelain is materially improved by coating them with shellac or copal varnish. Dry air is a good insulator, but when the air contains moisture it conducts electricity, and this is one of the principal sources of the loss of electricity. Hence it is necessary, in electrical experiments, to rub the supports or insulators with cloths dried at the fire, and to surround all electrified bodies by glass vessels containing substances which attract moisture, such as chloride of calcium.

[FINIS.]

GENERAL NEWS.

Where Work Can be Found.

MAZOMAINE, WIS.—The village board has submitted a proposition to vote on the question of issuing \$20,000 in bonds for the purpose of putting in water works and electric lights.

LOUISVILLE, KY.—The East Walnut Street Railway will shortly be running by electricity. Electric cars are already on the Bank Street line.

WHEELING, W. VA.—The Wheeling and Elm Grove Co.'s Electric Road will commence work as soon as permission is given by the City Council.

LOS ANGELES, CAL.—E. P. Clark, general manager of the Consolidated Electric Co. here, bought at foreclosure sale the plant of the Pacific Railway (cable) Co. for \$17,476.30.

MERIDEN, CONN.—The Meriden Horse Railway Co. is letting contracts for the electrical equipment of its lines. Will use Thomson-Houston system.

PHILADELPHIA, PA.—Twenty-three miles of survey have just been completed for the proposed electric railway between Westchester and Philadelphia, and it will soon be ready for bids.

RUSSELLVILLE, KY.—The City Council has granted a franchise to erect an electric light plant and contracted for lighting the city. The plant will cost \$10,000 and will be built at once.

YOUNGSTOWN, O.—The citizens will vote at the November election on the question of issuing \$100,000 in bonds to establish an electric lighting plant.

PITTSBURG, PA.—The Youghiogheny and Wick Railway Co. has been incorporated with a capital of \$18,000. The proposed road will be one mile long and will run from Benning Station to Wick Haven.

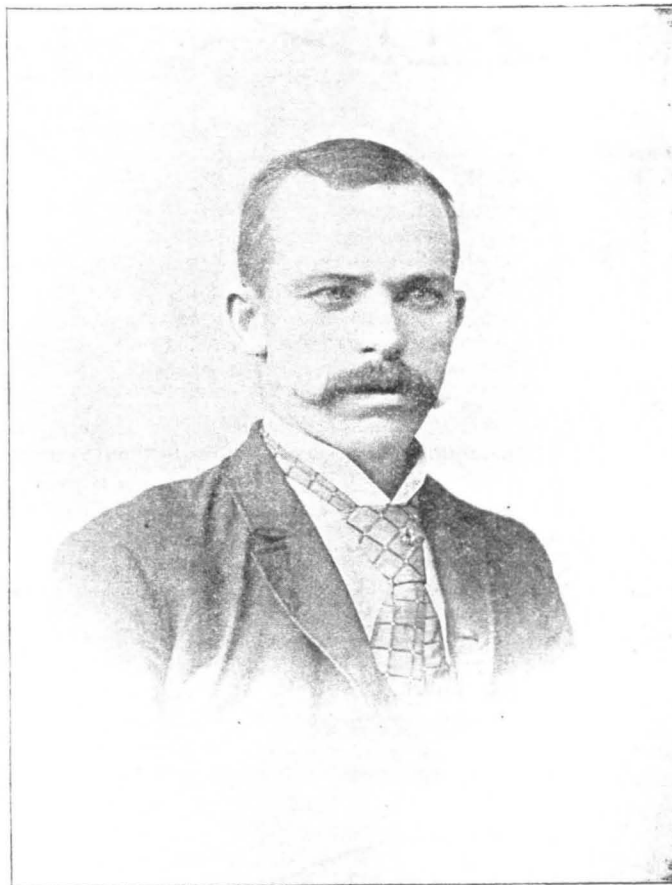
INDIANAPOLIS, IND.—The directors of the Citizens' Street Railway Co. are receiving bids for a new power-house to be erected this fall, and it is their intention to purchase new equipments during the winter. Address, General Manager McLean.

NEW BRUNSWICK, N. J.—The New Jersey Consolidated Traction Co., which made application to the Union County Board for permission to lay tracks for an electric street railway along the country road from Newark to Elizabeth, is contemplating the extension of the stem through Rahway to New Brunswick. A number of prominent local citizens are interested in the enterprise.

MINNEAPOLIS, MINN.—Plans and specifications have been prepared for the erection of a \$25,000 hospital for the St. Barnabas Hospital Association. The hospital will maintain its own electric light plant. L. R. Robinson, Sec.

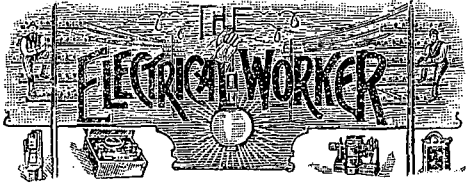
PORT RICHMOND, N. Y.—A meeting of citizens was held in the matter of extending the electric road from its present terminus to Castleton Corners, to cost about \$10,000.

SAN ANTONIO, TEX.—The Citizens' Electric Railway Co.'s plant was purchased by the San Antonio Street Railway Co., and Superintendent Greer, of the latter company, is now in charge of both.



J. T. KELLY, GRAND SECRETARY-TREASURER.

however. Conductivity depends on many physical conditions. Glass, for example, which does not conduct at any ordinary temperature, conducts very well at a red heat. Water, which is a good conductor, conducts but little in the state of ice at 0°, and very badly at -25°. Powdered glass and flour of sulphur conduct very well, while in large masses they are non-conductors. The only reason that I can give for this is because they are in a state of powder; each particle becomes covered with a film of moisture that acts as a conductor. Bad conductors, as we all know, are called insulators, for they are used as supports for bodies in which electricity is to be retained. A conductor retains electricity only so long as it is surrounded by insulators. If this were not the case, as soon as the body carrying the electricity came into contact with the earth, which is a good conductor, the electricity would pass into the earth, and diffuse itself through its whole extent. On this account the earth has been named the common reservoir. A body or wire is insulated by being placed on glass or porcelain knobs, commonly called insulators. No bodies, however, insulate perfectly; all



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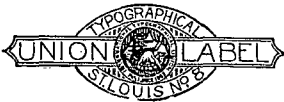
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St. Louis, Mo., October, 1893.

Advertising Rates on Application.



We again call the attention of the officers and members of local unions to Sec. 9 of Art. XX. of the Constitution, which reads: No local union shall be entitled to representation (at the National Convention) that is one month in arrears.

There are at present a number of unions in arrears to the General Office, and as the date of the convention is near at hand, all unions should settle their indebtedness at once. We desire to close our books for the fiscal year on Oct. 31st, and all remittances should reach this office before that date, as it will take at least a week to make up our annual reports.

A correspondent takes exception to several of the suggestions offered in last issue. We have neither the time nor space to give an explanation of them or the data and statistics which could be advanced for their support. Furthermore, it would appear to some that this would be using undue influence for the passage of certain pet measures. We offered them as suggestions, and if they have been the means of calling out discussions in our local unions on constitutional points, our object has been attained.

Each union should give its delegates written instructions on all important subjects that it desires to present to the convention. Said instructions should be signed by the President and Recording Secretary, and bear the seal of the union. This will have an important bearing on the work of the convention, and do away with much frivolous talk, and when a delegate rises to address the meeting, all present will know that he reflects the sentiment of his union, and his remarks will have much greater weight. We all remember how it has been in past conventions; delegates would rage and storm, and say that their union wanted this or that, and did not want some other thing, and finally, when the deliberations of the convention were submitted to a popular vote, they were carried almost unanimously.

In our last issue we threw out a few suggestions, more for the purpose of calling the attention of our members to the Constitution, and have them study and discuss it, than because we thought it needed many alterations. The convention will be composed of a large number of delegates. Some will come instructed by their unions, and others, as in the last convention, will simply represent themselves, if they represent anything.

Our Constitution has stood the test of two years, and the idle talk of some unions that their delegates will be instructed to tear it to pieces and present a new and more radical one will have but little bearing on conservative delegates, who will see that the Constitution as a whole is a masterpiece, and, with the exception of a few slight changes and additions, which two years' experience has shown to be necessary, will let the Constitution alone.

Our Ritual is in much more need of revision than our Constitution. A committee was appointed at our last convention to revise it, and whether they are prepared to present a new or revised Ritual to the convention or not, we can not say.

Retrospect.

On Nov. 21, 1891, delegates from five unions of wiremen and linemen met in St. Louis, and after a week's hard work announced to the world the formation of the National Brotherhood of Electrical Workers. This was the first attempt ever made to organize the electrical workers into a national body, with local unions in the principal cities. The first year was a year of uninterrupted prosperity, and at its close delegates representing forty-five local unions met in Chicago—an increase of forty unions and 6000 members. Eighteen hundred and ninety-two closed, and '93 opened with every prospect of duplicating the record of the previous year; and while our progress during the year which is about to close has not been as brilliant as during the previous year, it has been more substantial.

As it is trials and reverses that test the mettle of the individual, so it is with organizations. When anything new is started a large number join through curiosity. Others get in at the organization of new unions or during the first few months, when the affairs of the union are in an unsettled condition and the members are anxious to make a good showing and do not use the same discretion that they do afterwards. But just the moment a test comes the former drop out and the latter try to either involve the union in some difficulty or use it for their selfish ends. During the past year both classes have been pretty well weeded out, and while they show quite a falling off on our roll books, the organization is far better off without them, and with the constant infusion of new blood of a better quality, we can to-day safely claim that we have the cream of electrical mechanics in our organization and are down to a solid working basis. Nearly all the trouble we have had during the past year can be traced either directly or indirectly to the above sources.

"Live and learn" is a trite but true saying. We are about to finish the second volume of our history. It is an open book, and we all have helped to write it. We should each study carefully the part our union has played, and when we meet in convention and delegates are present from all parts of the country, we should not be long in seeing the relation between cause and effect. Eighteen hundred and ninety-three can furnish to thoughtful delegates much food for reflection. History repeats itself. Human nature is the same the world over, and is the same now that it was thousands of years ago. The same causes will always produce the same effects. If we have made mistakes we should profit by our experience and not repeat them; or, better still, amend our constitution so that a repetition of them will be impossible.

From the time an open circuit occurred in No. 8 down to the break in 63, events followed in such rapid succession that it would be impossible to go

into details here. One day, at least, of the convention can profitably be spent in reviewing them.

Let no one infer from the above that this has been a poor year for the Brotherhood. Despite our losses we have added twenty new unions to our circuit and more than doubled our membership. With the loss of our dead weight and undesirable material we are in position to make healthy progress in the future. We should bear in mind that our future growth will be of an individual character the same as the older societies and organizations. Each member should at least bring in one new member during the year, and in this manner our membership will be doubled, while at the same time we will have a chance to thoroughly inspect all material before placing it in line.

The World's Fair.

Ere our next month's paper goes to press the Columbian World's Fair Exposition will be a thing of the past—a memory of a medley of wonderful sights and sounds. Sights that outrival anything ever before imagined in prose, poetry and fiction. Sounds that probably have never been heard at one time or place since the building of the Tower of Babel. Palaces that seemed to have arisen in a night will soon be razed to the ground. Their wonderful contents will be scattered o'er this wide earth from north to south, from east to west. Their inhabitants will in most cases return to the nations from which they came and tell of the wonderful new nation and the still more wonderful new city (not yet a half century old) of a million inhabitants—with its buildings of twenty stories in height and in their busy hours resembling huge bee-hives. To the citizens of Damascus what a revelation this must be—the old and the new—the past and the present.

The World's Fair is a true index to the character of the people of the United States. From its very inception to its close it shows to the nations of the world the wonderful grit and energy possessed by Americans. In every other country such an undertaking would be entirely in the hands of the government. Our fair, though receiving the sanction of the National Government, was entirely in the hands of private incorporators, and its vastness shows the capability with which, as individuals, we can handle matters of such great magnitude. It also proves that such enterprises should be left solely to the government, as when in the hands of a corporation, in its great anxiety to make money, many petty abuses will arise that would not be allowed if under government control.

Another fact worthy of mention was the exhibits made by monopolistic corporations. Take, for instance the electricity building alone. One electrical monopoly controlled about one-half of the entire building, and though it made a magnificent display, it, of course, did not equal what it would have been had the 20 odd firms composing the monopoly each been on its own footing and been obliged to rival each other in displaying their wares. Monopoly appeared in many other places, and it was a source of wonder to enlightened foreigners that such things could be in this land of the free, and many kind warnings were given to look out for "monopoly" as it was in most cases a forerunner of "monarchy." This, of course, the good sense of the people of the United States would never permit, but it would be better for the people (the working people) to elect only their own kind to make the laws and, if possible, place railroads, telegraphs, etc., in the hands of the National Government.

So, with a good bye to "the greatest show on earth," we hope our next exposition will be entirely in the hands of Uncle Sam.

The incandescent light plant at the World's Fair is said to be capable of keeping 180,000 sixteen candle-power lamps alight at once, if required, which would be equivalent to the consumption of over 1,000,000 cubic feet of gas per hour. This is believed to be by far the largest single plant yet constructed.

Oct 1893

PERSONAL.

Our worthy Grand President, Bro. Miller, is in Cincinnati at present writing, and has been doing Herculean work lately in reconstructing and encouraging local unions that have grown indifferent. Our "G. P." says he would rather organize five new unions than reconstruct one old one.

Brothers White and McCarthy of No. 1 have been elected delegates to our annual convention, and will astonish some of the brothers with their Ciceronian flights of eloquence and their knowledge of the constitution and Cushing's Manual. They are born orators and great sticklers for parliamentary rules and constitutional points.

Wm. C. Prickett, of No. 21, a member of the Executive Board, has sufficiently recovered from his last accident to break out into poetry, and some of the brothers are mean enough to wonder if this is really a sign of convalescence. Bro. Prickett is said to be busy writing "An Ode to the N. B. E. W.," to be read at the Cleveland convention.

Bro. "Little Johnny Dunn," of Cleveland, is as busy as a mosquito during the dog days, or rather nights, in preparing to make everything pleasant for the convention delegates. He has just invested in a new suit and black silk hat, and is fond of quoting Saxe's advice:

"In going to parties look out what you're at,
Take care of your head and look out for your hat;
Or else you may find, that a favorite son of your mother
Has a pain in the one and a brick in the other."

Remember this advice when at the convention, brother delegates.

Bro. J. J. Vives, of New Orleans, one of our most conscientious grand officers, wants it distinctly understood that notwithstanding the heavy floods in his country, he is still "in the swim," and will be heard from at the convention.

Bro. "Bald" Fleming, of No. 24, and of the Great Northern R. R. (the *only* R. R.), is one of our grand officers who never needs a "tie pass." He will be at the convention, and will probably renew the noble fight he made last year to hold the next convention in the Flour City.

Bro. Peter F. Healy, of No. 31, our First Grand Vice President, will be at the convention with his 250 pounds avoirdupois, and will sit down heavy on kickers and hair splitters. Bro. Healy has met with financial reverses and family afflictions this year, but will be his own genial self at the convention. Better luck next year, Bro. Healy, is the sincere wish of the N. B. E. W., both individually and collectively.

Bro. Frank Roth, of Kansas City, the extreme Western member of the Executive Board, is not only a hustler in business, but has been working energetically for the good of the order, and has organized several new unions in the Western country. Keep up the good work, Bro. Roth, we wish there were more like you.

Brothers W. C. Bledsoe and W. S. Shaeffer, of Terre Haute, paid a pleasant visit to our sanctuary, and also to Locals Nos. 1 and 64. Should they find business rushing they will probably tarry some time.

It was our intention to publish cuts of all our Grand Officers in this issue of the E. W., so that our members could see the class of men who ruled their destinies during the past year. But some of the officers failed to furnish their photos, while others sent them in at such a late date that it was impossible to get half-tone cuts made in time for this issue.

Brother Billy Gent, the elongated "photo fiend," is working in Brooklyn, and "after his day's work is done," thinks nothing of taking "snap shots" at anything that he thinks would interest the readers of the E. W. We are indebted to him for illustrations of the ruins of the Atlantic Avenue Power House and of the pole climbing contest. We hope Bro. Billy—"The Gent"—will be at the convention at Cleveland, and favor us with some interesting "snaps."

A Brother's Hand.

A stranger trod with weary feet
A distant city's crowded ways;
Along each thronged and busy street
He passed with anxious, wistful gaze.
No friendly glance returned his own,
No cheerful greeting bade him stand;
Amid the crowd he moved alone
And longed to grasp a "Brother's" hand.

His face was brown and marked by care;
His hands were rough from honest toil;
The frosts of time had bleached his hair,
His feet were stained with country soil;
An "electrical worker," old and poor,
Thrown out of work in distant land.
'Twould give him courage to endure
Could he but grasp a "Brother's" hand.

A strange device this "worker" bore—
An emblem on a golden chain.
A passing "worker" marked the badge he wore
And checked his speed to look again;
Then stopped, advanced, by word and tone
Welcomed the wanderer as his friend.
Tho' stranger's glance had met his own
He knew he grasped a "Brother's" hand.

That night within a lodge-room's walls
The wandering "worker" told his tale,
And quick response to all his calls
He met from friends who seldom fail.
With lightsome heart and purse well stored
He parted from that kindly band.
Blessings and gifts had on him poured
Since first that "Brother" grasped his hand.

Those "brethren" of the mystic "hand"
Can find a friend in every clime
To cheer their hearts and by them stand,
As did this hero of my rhyme.
Tho' houses wired and poles be climbed
To reach some strange and distant land,
Yet even there they yet may find
Some stranger "Brother" grasp their hand.

Dedicated to all electrical workers by their
Brother. WM. C. PRICKETT.

HYGIENE, COLO.

OCTOBER 11th, 1893.

Editor Electrical Worker:

Allow me the liberty of saying a few words through your valuable paper for the good of the union. As there has been much said in this respect, I doubt as to whether I can give any new advice in the matter. I read the ELECTRICAL WORKER, and of course can not fail to notice the steady growth of this grand organization through the United States. Still, no doubt, there are a great many old members who seem to have lost interest, and are not so enthusiastic as when they joined. What they need is encouragement. But as I am not capable of giving that, will leave it to some one more able than I. But if they have had the misfortune of seeing any sickening sights in the union, which are apt to occur in any organization, especially one so young as the Brotherhood, it should not turn them against it. They must remember it is the fault of the member or members, and not of the Brotherhood, and it should only renew their interest, and they should take steps to see that the member or members be brought to justice and the good name of the Brotherhood maintained.

The Brotherhood is all right. Though perhaps some employers can't see it now, they can not fail to see it in the near future. They will gradually come to their senses, or in other words, awake from their sleep, and realize the great mistake they have made in trying to oppose the Brotherhood. They will soon understand that the Brotherhood is not an organization composed of a lot of bums for the purpose of strikes and hurting the interest of their employers, but that it is an organization comprising some of the best and smartest men in the electrical business, who are working

for the interest of their employers as well as for themselves, who propose to rescue the trade from the unknown depths where it has lain dormant for centuries, and place it where it will be recognized as a business worthy of an honest, intelligent and upright man.

Brothers, I am too young to give advice, but pardon me if I give you a gentle reminder. Work for the interest of your brother, your employer and yourself. Don't look at the dollar only, although that is quite an important factor; take an interest in your work and learn all you can, and you will not regret it in the end. Help one another, and don't get jealous if your brother gets a promotion to which you think you have as much a right as he. Better times are coming.

Yours fraternally,
JOHN W. BENNETT.

In a recent letter before the Franklin Institute Nikola Tesla stated that so strong had become his conviction of the possibility of the transmission of intelligible signals, and perhaps even of mechanical energy, to any distance without the use of conducting wires, that he no longer regarded it in the light of a mere theoretical possibility, but as a serious problem in electrical engineering which seemed to him certain to be carried out. He looks upon this result as nothing more than the natural outcome of the most recent investigations by himself and by others who have been engaged in the study of the phenomena of high-frequency alternating currents.

TRADE NOTES.

Wm. H. Bryan, consulting engineer, St. Louis, has just completed and put in operation the plant of the Chester (Ill.) Light, Water & Ice Company, consisting of 30 city arcs, 2000 horse-power, and 1200 commercial and residence incandescent lights.

The Consolidated Engineering Company closed a contract with the city of Mt. Olive, Ill., for an electric light plant consisting of 40-light Wood arc and 1000-light incandescent. Contract for plant complete, including building, pole line, apparatus, steam plant—plant ready for operation.

The School of Applied Electricity of Cleveland, of which Prof. E. F. Roberts is president, has met with unparalleled success, and meets the approval of educators, technical men, engineers, wiremen and salesmen. Its three methods of teaching—First, entirely by correspondence; second, by correspondence and personal examination; third, personal attendance at the school and a portion of the instruction by correspondence.

The National Automatic Fire Alarm Company of Missouri, of which J. O. Banks, of 220 Commercial Building, St. Louis, is manager, has been very busy equipping some of the best commercial houses in town with its fire alarm system. Notable among these firms are Meyer, Bannerman & Co., Friedman Bros. & Schaeffer, Jacob Strause Saddlery Co., John Meyer Shoe Factory, Hargadine, McKittrick & Co., and others. The construction work is done under the superintendence of Bro. Wm. Peebles.

Day's Kerite, of which Messrs. Cushing & Morse, of Chicago, are general western agents, received the only award made by the electrical judges at the World's Fair for wires and cables. It is given for general excellence in the manufacture of underground, aerial, submarine telegraph and telephone wires and cables. Kerite is the invention of the late A. G. Day, and is steadily growing in popularity under the efficient management of W. R. Brixey, brother of the late Mrs. Sarah A. Day. It is largely in use among the largest telegraph and telephone companies in the country, and the New York Central Railroad Company recently received 300 miles of eight-conductor cable for use between New York City and Albany.

CORRESPONDENCE.

[The Press Secretary, though an officer of the Local Union, is really a resident correspondent of the ELECTRICAL WORKER, and should keep his paper thoroughly posted on all matters pertaining to the electrical industry in the vicinity he represents. New plants, extensions of old ones, new electric roads, state of trade, new ideas, electrical novelties and accidents are a few of the topics to report on. Please notice that the minutes of the meetings are not required, except the report of new officers, and such matter as may be of general interest to all members.]

ST. LOUIS, MO.

OCTOBER 10th, 1893.

Editor Electrical Worker:

Last month was one on me; my vacation being over, I am again in kicking harness. Looking over the articles of brother P. S's., I notice a very encouraging thing, and that is they all seem to be anxious to be of service to the cause and deserve great credit for their efforts. The articles are well written and to the point. Old No. 1 is in line and doing lots of work. Although business generally is very dull, union men unemployed are few, but would advise those unemployed brothers in other cities to remain where they are if they can make expenses. But if they do come to St. Louis and are O K, they will be received with open arms and provided for, if possible for No. 1 to do so. The members are charitable to a fault, which is manifest at every meeting of the Union. They may quarrel and use hard words to back up their candid opinions, but as to doing a malicious wrong, they will not. A great deal more harmony exists than is generally credited to electrical workers.

It becomes my painful duty to chronicle the death of a once good member of No. 1, but unfortunately the Dread Destroyer found him delinquent and suspended. Nevertheless, he was a noble-hearted man and true friend, and his enemies could be counted on your fingers. Robert Taggart passed away Oct. 10th, after a hard fight with typhoid-pneumonia, which would have carried a weaker constitution down much sooner.

Brother Nick Rumlade, a member of No. 1 by card, who was traveling through the country seeking employment, was killed at Farmington, Ill., October 5th, 1893, the particulars of which were published in the daily papers at the time. Brother Rumlade was not generally known here, but by very persistent efforts Brother Hisserich has located his relatives in Kansas, and will see that everything is done that remains to be done.

No. 1 is in a ferment over new by-laws, and some very interesting bantering is expected before they are accepted. At the meeting, Saturday, October 14th, delegates to the National Convention were elected. After a hard contest Brothers Charles E. White and J. G. McCarthy were elected. Owing to the lateness of the hour a postponement was necessary, and at the next meeting two alternates will be chosen. One very disagreeable feature of the meeting was the obstreperousness of a visiting member from No. 9 of Chicago. His cheek is immense. Having no voice in matters of business in No. 1, he still persisted in chipping in, and even went so far as to try to run the meeting as he chose. The initials of his name are D. J. McCarthy. Bro. Mc must not think that St. Louis men are all cow punchers and away behind Chicago. We are under the impression that if it came to points, St. Louis, No. 1, can give such as he cards and spades, and still be victorious.

Brothers Schaeffer and Bledsoe of Terre Haute, Ind., were introduced, and received very cordially. The general impression prevails with the boys that they are both square people and deserving of as good treatment as possible. Quite a number of brothers from No. 64 were present and took great interest in the proceedings. The visitors, with one exception, demeaned themselves better than some of our own members, as some, "who could be mentioned," seemed trying to make a comedy of the

whole affair. The impression seems to have gained footing with No. 1 that No. 64 is in conflict with it. Such is not the case. Had the brothers read 64's P. S.'s communication they would have been convinced otherwise. A mixed union is too conflicting with itself to accomplish much. Harmony should be the first point gained and the rest will come easily. Owing to indisposition I will have to cut short.

Hoping the N. B. E. W. of A. will soon accomplish its object, I remain, yours, etc.,

W. P. PEEBLES,

Press Secretary.

MILWAUKEE.

SEPT. 9th, 1893.

Editor Electrical Worker:

The only item of importance that I know of to send you is that:

Bro. P. Keelyn and Bro. Alb Smith have leased the old quarters formerly occupied by the Wis. E. C. Co., and are making local contractors open their eyes. They have in the past week installed a two hundred and fifty light Westinghouse in the Plankinton, and one hundred and fifty extra lights. We hope by next spring Mr. Plankinton will build a power and light plant of his own to furnish the loan and trust building, public library and a number of stores, as he proposed doing. There is very little work in sight. At present the only work of any importance is at North Milwaukee, where the General Electrical Company are equipping a furniture factory.

We were all pleased to see the progress No. 3 has made, and hope all locals can settle their business in that manner; while the style they publish a scab in is worthy of future use by other locals.

We have had some very interesting debates lately for the good of the union, and to cap it we are to have a special meeting the 18th of this month to get the sentiments of our local and have our delegates, Bro. Q. Jansen and Alb. Smith, sleeping happy when in Cleveland. Bro. E. Cook and myself are the alternates. Hoping that the convention will be one for us to be proud of and a benefit to our worthy order, I remain,

Yours fraternally,

M. J. QUIRK,
Press Secy.

NEW YORK.

OCT. 8, 1893.

Editor Electrical Worker:

From the letter of Local No. 60 of San Antonio, Texas, we cull the following: "Among the speakers on Labor Day was Mr. Theo. H. Banks, who, while a leading contractor of this city, is a very staunch and ardent friend of union labor."

This brought forcibly to the mind of the writer that very choice bit of pleasantry which the playwright, Mr. Chas. Hoyt, author of the "Texas Steer," puts into the mouth of the right-hand man of Col. Brander, or Congressman Brander, at a dinner given at the Arlington, in Washington, to the Supreme Court Judges. There is a committee of the colonel's constituents in Washington from Texas, and the colonel's private secretary has been sent out to show them the city. They return unexpectedly to the hotel and intrude upon the distinguished guests of the colonel, and immediately the right-hand man of the colonel, as soon as they are seated, launches out into a speech and expatiates upon the merits of the "Lone Star" state, and makes as his peroration the following: "In five years New York will be going to Texas for her fashions." This is the signal for the enthusiastic Texans to rise from their seats, bang the decanters upon the table, and finally stand in their chairs and draw seven-shooters from each pistol pocket and fire away at the ceiling.

If Mr. Hoyt was not a prophet he is certainly entitled to that distinction now.

The sooner New York copies after one of the leading contractors of San Antonio, Texas, and its

leading men get into the van of labor's stalwart hosts, just as much sooner will that amelioration of the producers be a reality instead of a theory.

Contrast New York as she is to-day, with her Iron League, composed of the leading structural iron firms of the country; the Building Trades' Club, whose edicts are supposed to make the very pinch of want take hold closer, and the open and avowed enemies of organized labor on every hand, not excepting the Electrical Contractors' Association, and you have a picture that the ever zealous-American, from the wealth controller's standpoint, is trying "to turn toward the wall."

It is well there is a Labor Day and "more power to it."

For, as the theologian reasons, were there no "God's Day" there would be total depravity of the human race. So with the hosts of labor; the day set apart for them serves to teach that "Labor is noble and holy," and that those who seek to barter men's bodies are a greater menace to true religion than those who lay snares for their souls. For what is all the fabric of life, from birth to death, through everything, religious or secular, but the product of labor?

The note in the personal column of the September WORKER wrought the writer up to this pitch, and will our readers please bear in mind that every aspirant for honors at the Congress of Religions at Chicago that has held the public ear hails from pulpits, tents or temples, where nothing but blind submission and to learn to get your own living in that state of life unto which it has pleased God to call you is taught.

We have listened in vain for the clear, convincing logic of the wage earner, who preaches true religion by the golden rule and the "Sermon on the Mount."

Salt Lake City can rest assured that we shall keep our Argus eye open for that defaulter that is trying to reach Aroostook County, Maine, where they pry the sun up with a crowbar.

The first one that we see with a lope like a Digger Indian and devoid of everything but aliases, up goes the voltage and bang goes the switch, and another candidate for a short-handled shovel in Sheol will have vamoosed.

Yours fraternally,

C. W. HOADLEY,
*Press Secretary.*Local No. 3, N. B. E. W. of A.,
213 Willis Ave., N. Y.

NASHVILLE.

OCTOBER 12, 1893.

Editor Electrical Worker:

Electrical news is scarce here at this writing, and my copy is correspondingly short.

Bro. Owen McEwan has finished the inside wiring at the new station, and will leave shortly to accept a position in Buffalo, N. Y. "Mac," as he was called, made a great many friends while he was here, and he has the good wishes of all.

John Quincy Adams, alias "Jack the Mashier," has accepted a position with Mooney & Baine, and if it be true that "coming events cast their shadows before," Jack has a bright future before him, and No. 5 wishes him all the success in the world.

The Nashville Railway & Power Company is now running regularly, and makes better time than any road in the city.

The bright rays of the incandescent now gleam with a gorgeous glow at the Custom House, and the fitful, flickering gas jet is "not in it."

It is rumored that the lessees of the Grand Opera House contemplate wiring that historic old landmark for electric lights in the near future.

The wiring of the new County Asylum is very near completion, and a more handsome job will be hard to find.

No. 5 has added two new workers since the last issue, and they are both good men.

President Gus Prange has returned from a visit to the big show at "Chic." His intention was to

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stay two weeks, but, alas! he succumbed to the deadly sandwich, and came home a very sick man. He says Chicago is entirely too large.

J. E. Bender is at this writing making preparations to go to Chicago. He has been warned against the "Midway" and other pitfalls, and if he falls our conscience is clear.

Vice-President Wilcox has been elected delegate to the Central Labor Bureau, and it is hoped he will look to the union's interest while a member of that organization.

John O'Neil is groundman to a non-union line-man. "How the mighty hath fallen."

Ed Farewell is no longer on the idle list, and now signs for his pay without a tremor.

Will wonders never cease? Think of Clarence Wilcox giving the boys a long lecture on the evils of the tobacco habit with a pool of the amber deep enough to float a barge under his feet!

And now a word with trimmers: Don't monkey with an arc lamp without first throwing the hood switch, for I know whereof I speak. You may go on for years and not get any current, but, sooner or later, you will get it in the neck, and if you survive you will have a misty idea that it would have been better had you taken the advice of one who is just now convalescing from an overdose of electricity and who will hereafter put the hood switch to the use for which it was intended.

Fraternally,

P. H. LANGDON,
Press Secretary.

TOLEDO, O.

OCTOBER 1, 1893.

Editor Electrical Worker:

The indictments against Brothers Joseph Shea, William Callahan and Joseph Campbell were nollied yesterday by the prosecuting attorney, but the indictment still stands against Brother James Harrington.

For the benefit of our new brothers, I will state that these men were indicted on Pinkerton evidence, furnished at the request of the Toledo Electric Light and Power Company. Last December the employees of this company made a demand for a slight advance in wages, and when it was refused, they quit work. (This was before Judge Ricks delivered his famous decision that an American citizen could not quit work when he felt disposed to do so.) The company immediately sent to Chicago for Pinkerton hirelings, who had to furnish some sort of evidence or lose their jobs, and trumped up the evidence on which the men were indicted. The fact that the prosecuting attorney nolle prossed the cases against three of the men conclusively shows what kind of evidence the company had against them.

N.

CHICAGO.

OCTOBER 14, 1893.

Editor Electrical Worker:

Chicago has been dull as usual during the past month, but with a slight upward tendency. Already we are anticipating a return to its normal condition as it was before the demoralization of the World's Fair. It is estimated that because of the reduced price of building material and labor that work will not be so dull as the present outlook seems to justify. More than one-half of Chicago's electrical workers have left town, so that the situation has in a measure adjusted itself. Several of the boys have dropped into town lately, and we notice that they have "caught on."

One of the consequences of the present dull season has been that some who were unable to find a way open have taken the bull by the horns and gone into business on their own account. It will be interesting to watch this new crop of electrical contractors and engineers, and undoubtedly some of them will eventually pull out on top. Certain it is that they know electrical construction, and, what is more to the point, are willing to work. Some one has said: "What men want is purpose, not talent;" in other words, "not the power to achieve, but the

will to labor." And there is no reason why they can not win out in competition with other companies, even if they have no elegant offices, salaried figure-heads and dividends to pay.

No. 9 held open meeting last Saturday night, and was addressed by the President of the State Federation of Labor and by other speakers on the convict labor question, political economy from the single-tax standpoint, etc. The attendance lately is not what it should be, yet we believe that the ups and downs of grand old No. 9 during the past eighteen months have not been without their lessons and have evolved a purer spirit of unionism than ever known before.

No. 9 will be there—Cleveland, Nov. 13th.

L. L. JOHNSON,
377 Mohawk St.

INDIANAPOLIS, IND.

OCTOBER 8, 1893.

Editor Electrical Worker:

Local No. 10 met on the evening of the 2nd inst. and transacted all its important business, President McCreary in the chair.

Favorable action taken on some communication that was presented from the West.

Brother E. C. Hartung was elected as our delegate to represent us in the National Convention at Cleveland, with Brother Jas. Carroll as alternate. Both are orators of some note and if the convention is captured by our delegation you need not wonder at it.

The American Telephone and Telegraph Company got its franchise to go through our city. Our telephone company leads and will have its general offices in Telephone Exchange Building, corner of Ohio and Illinois streets.

Brother S. B. French met with a painful accident during the last week while putting a bracket on a 5-4-3 center-pole for a street-car company. It caught his two middle fingers between the top of the pole and the bracket, cutting them off; nothing new for Sammy. Last week, while hauling poles, he fell off the wagon and had his foot run over. I think he will do better after this.

We are going to have a banner "after the ball;" that is, if we have enough left to pay the fiddler. If the same enthusiasm is kept up that we have started with we surely will have a grand, large banner after the ball is over. It will be our first ball and will be a grand one. We will have electric displays and others.

Let every one of No. 10's members work for success and it will be ours.

Will give more details of ball later.

Fraternally yours,
D. A. GREENWOOD,
168 Davidson St., Indianapolis.

EVANSVILLE, IND.

OCT. 7th, 1893.

Editor Electrical Worker:

No. 12 is still progressing slowly, the same old crowd at the bat every meeting night. We have very interesting meetings sometimes; the boys get warmed up and go at it right. We are having lively times now discussing our convention. We find there is a great deal to be done before it comes off, so we are trying to crowd it all into the short length of time we have to spare. We find there are a great many things to be considered, and we want to load our representative down pretty heavy before he gets away, so as to be able to keep up our end of the kick. I don't think the locals are taking very much interest in the welfare of the Brotherhood, or we should hear from them once in a while. Sixty-four locals up to date of last issue, and only hear from about two dozen of them. I think if they go on that way we won't have much news for our workers long. If they would only give us a few lines to let us know they are alive, it would be something of interest to us all, but they don't think of that. If you have a Press Secretary who can't write elect another; don't act the

oyster with us; let us hear from every one, if it is only a line or two. We are not very busy here at present; things are pretty quiet just now.

Cupid is still busy among us. I think before many moons another of our brothers will be stepping off from the appearance things have taken. May good luck and best wishes attend them on their journey through life is the best I can give them. Hoping this will find all the brothers in good standing, and with best wishes for all in the craft,

I am, yours fraternally,

C. H. BROWN,

Press Secretary.

CLEVELAND.

OCTOBER 4th, 1893.

Editor Electrical Worker:

In view of the fact that this will be the last issue of the journal before the next convention, a few suggestions concerning the arrangements which have been made for receiving and entertaining the delegates will not be amiss. Owing to the numerous depots in the city, and the different times at which they will arrive, it will be impossible for us to have committees stationed at each depot to meet them; but we hope that the directions given here will be sufficiently explicit, so that all delegates will be enabled to locate the hotel and hall without the least difficulty. The headquarters will be at the Hawley House, situated on the corner of St. Clair and Seneca Streets, about three minutes' walk from the principal depots; special rates of \$1.50 per day, and the best rooms in the house have been secured. It is about three minutes' walk from the hotel to the hall, which is at 94 Superior Street, in the Marine Engineers' Benevolent Association Rooms.

We have arranged for an open meeting on Saturday evening, Nov. 11, and all delegates who will be in the city are requested to be present. We would especially request our Grand President to be present, and all of our national officers who may be here at that time, for we hope to make it an event productive of much good to our local. As the convention will begin on Monday, lasting probably three days, we have made arrangements for a grand ball to be held on Nov. 15, for which complimentary tickets will be furnished to the delegates, finishing with a banquet, and we hope that as we have spared neither time nor expense, our arrangements are such that it will be a time long to be remembered by those present. It would be a pleasure for us to show the delegates through our shops and power-houses, but as the majority of them are closed for the present it will be impossible to gain admittance; but, weather permitting, we will do all we can in sightseeing, which I am afraid will be limited.

We have spent much time in discussing the suggestions in the last issue of the journal, and hope that the delegates of other locals will come prepared to represent the actions of their unions on the same questions. I will also add that No. 16 is in politics for all there is in it, two of our members being in the field for State offices, and from present indications their chances are good. This is about as plain as we can make it in regard to locations and what we have done, and hope that all delegates will be on hand promptly to begin business.

Hoping that all unions will be represented fully, with best wishes for the success of the convention of '93, I remain, yours, etc.,

NICHOLAS DUFF.

DETROIT.

OCTOBER 10th, 1893.

Editor Electrical Worker:

Bro. I. D. Hicks has been ill for the past few weeks at Grand Rapids—typhoid fever.

Bro. Dan Ellsworth takes Bro. W. J. Dawson's place on the trustee board, the latter's office having been declared vacant on account of non-attendance.

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Bro. McIntyre, who left here for Cincinnati some weeks ago, has returned, and we are pleased to know that he will still be with us, as he is to be in the employ of the Commercial Electrical Company.

Bro. Thomas McGuire has severed his connection with the Telephone Company, and accepted a position with the Commercial Electrical Company, who have contracts to install electric light plants in this and adjoining States. In consequence of his inability to attend our meeting regularly, Bro. McGuire resigned his position as treasurer of No. 17, and Bro. John Dyer has been elected to fill the vacancy.

An editorial in last month's ELECTRICAL WORKER relative to our third annual convention, which is to meet in Cleveland on Nov. 13th, states that delegates' expenses (which are to be paid by their local unions), would be made up of "railroad fare, hotel accommodation," etc. Now, I desire to draw your attention to a fact which appears to have been overlooked in enumerating those items of expenditure. You will perhaps be able to recall the afternoon of Wednesday, November 16th of last year, upon which occasion we wound up the business of our second annual convention at Chicago, and the friendly rivalry shown by a number of delegates to secure for their native places the honor of our next convention. Also how the tide was turned in favor of Cleveland, and that city selected, through the remarks of Bro. John Dunn, who stated that he was authorized by No. 16 and also by No. 8 to promise to the delegates of 1893 free hotel accommodations if the convention went to Cleveland. It was upon this promise that the delegate from No. 17 supported Bro. Dunn, and the same might be said of others who desired the convention for their own city, but were not authorized to offer any such inducements as those held out by Bro. Dunn. Our representative on that occasion asked that the promise of Nos. 8 and 16 be embodied on the minutes, but whether such was or was not done we have no means of knowing. In preparing the article for your last issue those facts may have been forgotten, for I can not believe that No. 16 would try to go back on their promise, made by their delegate last November. I hope, however, that you will set the matter right in your October issue, so that old and new delegates alike may know just what bearing the promise may have upon the coming convention.

Now, a few words touching some of the suggested amendments to our constitution:

I believe, as I did when the Executive Board was distributed all over the country, that the best results could and can thus be obtained from that important committee. It will very rarely become absolutely necessary to call them together, except at convention time. Matters to be referred to them can be sent by mail or telegraph, as the urgency of the case may demand.

Why should a local union be assessed for an individual member's subscription to the ELECTRICAL WORKER, when such member may shortly afterwards be suspended for non-payment of dues, and before he has paid in to his local union his subscription? Let each member pay directly for his own paper and his union be required to collect the amount and forward it to the head office. Again, if members are to be charged full price (\$1.00), it should not be obligatory on them to take the paper. I believe members' subscriptions should be raised to 50 cents and collected as at present.

What valid reason could be advanced for desiring to make the number of members necessary to constitute a quorum bear any relation to the total membership? With a large number of members scattered all over the country (and, therefore, unable to attend), it appears to me that unless the conditions were very favorable, many meetings could not be held for want of a quorum, and, consequently, a number of charters would be endangered.

Why should not members of different branches

of the trade be privileged to dwell together in unity, and thereby learn from each other, instead of being compelled to split and thus perhaps drift apart, and forget their pledges of brotherly feeling and protection? One strong union is surely much better than two weak ones, and the expense connected with the holding of meetings of the one little more than half of what it would be for the two.

Why should not local unions have control of their own protective fund, as at present? Is it not enough that the E. B. has the say in its expenditure? It appears that the present per capita tax of 10 cents per member per month should be amply sufficient, and should it fall short, authority is given to levy assessments. When we consider that Trades Councils' per capita tax is one cent per member, out of 50 cents dues, we have only 34 cents from each member per month, from which to pay sick benefits, salaries, rent and other incidental expenses, after laying away the 5 cents for the protective fund. I would like to ask how many local unions would care to undertake the proposed additional drain on their purse.

If, by Article 12, *mechanical* qualification is meant, I think the change suggested would be a very unwise one. We are all well aware that only a small proportion of our members are regular in their attendance and, therefore, it is from their ranks we shall choose our officers. Then, but a small number of those possess the qualifications necessary to properly conduct the meetings in such a manner that harmony and good will may prevail. Perhaps those very members may not be skilled electricians, while those well up in the business may be perfectly cognizant of their ability to fill the offices in a manner calculated to promote the best interests of the order. Rather let regularity have some bearing on eligibility for office than mechanical skill.

As to biennial conventions, No. 17 is decidedly opposed to such a change. With a young organization like the N. B. of E. W., many radical changes in our constitution may have to be made in the near future, in order to keep pace with the requirements of the times. In the course of half a dozen years, when we have had an opportunity to test certain laws, and can more readily foresee what will be to our best interests in time to have these laws enacted in due course, and when all points have been thus covered, we may talk biennial conventions, but not before then. Besides, why should a set of officers be elected for two years. If we are satisfied with their administration we can return them to office.

No. 17 has elected President Shuttleworth as delegate to the third annual convention, and Secretary Shuart alternate.

REX.

[During the excitement of the last hour of the convention, our assistant, not being a short hand-writer, may have omitted to note some of the promises made by delegates. Our own recollection, and also the recollection of at least two other delegates, is that the delegate for No. 24, and concurred in by the delegate from No. 23, was the only one who offered to provide for the delegates, free of expense, providing the convention went to his city.—ED.]

WHEELING, W. VA.

OCTOBER 5th, 1893.

Editor Electrical Worker:

I will say in behalf of No. 21 that we are still in Wheeling, and will remain here, I presume, for some time to come. We had a very pleasant surprise in the appearance of Bro. Miller, our most esteemed and worthy Grand President. His form looms up in the distance as of old in shaking hands and giving advice to the boys. He says it is "good bye," as he thinks after the convention he will go south and grow up with the country. May good luck always attend him.

Work is very short here at present, but our boys manage to keep employed all the while. I think things will be better in our line in a couple of months from the present time. All the boys will have so much work throughout the country they will not be able to attend any "Fourth of July" picnics this winter.

Our worthy president, Bro. Ullery, is taking in the sights at the great and wonderful fair. I can imagine I see him gazing upon the wonders worked together by our craft. On his return he will tell us how many "electric fountains" (?) he saw at night. Our fellow workman, Bro. Wise, will also see the sights about the 15th. When Uncle Fred gets in Chicago the girls will all be cross-eyed looking after him. He is our society man and we will place him in contest with any other local organization.

I suppose all our brother locals are giving instructions to their respective delegates to our next convention. Brothers, this is one of the most important occasions for our "B." Study well your suggestions before giving them over to your delegates, as the more thorough your instructions the better your delegates can work in the convention. By all means let us make the "B." a school of instruction as well as a benevolent society. Discuss it at the few meetings yet to come; give us all the knowledge on the subject you can, for "knowledge is power." I remain your brother,

WILL C. PRICKETT.

AN EXAMPLE.

Mr. A. has a residence in which he wants wired, front hall one light and kitchen five lights. Now he is a very eccentric old man and wants things his way. He wants both on one switch in front hall, to be so arranged that it will turn them on or off independent of each other. When he wishes the kitchen lighted he wants to turn it on; when he desires the hall lighted he also wants to turn it on. We have had quite a discussion in regard to this, as to whether a three-point switch would work it or not. I take the stand it will. Would like to hear from others.

WILL C. PRICKETT.

OMAHA, NEB.

OCT. 4, 1893.

Editor Electrical Worker:

No. 22 has not been represented in the last two issues, as the Press Secretary has been out of town since the middle of July. Considering the dull times, No. 22 is doing very well, initiating a few new members every meeting night. The outsiders are beginning to realize the fact that the N. B. E. W. has come to stay. Electrical work is very dull here; about the only work being done is in connection with the telephone subways. We had quite a fire here night before last. The Farnam Street Opera House burned to the ground, a five-story brick, built in 1880. The walls fell in and killed one fireman and slightly injured several others. As usual, the fire was said to have been caused by the electric light wires. The only wires there were those running to a lamp hanging in the dome, and that was not burning at the time of the fire. When the walls fell in they destroyed the arches carrying the electric and telephone wires in the alley, giving the boys something to do in these dull times.

No. 22 made the best show on Labor Day of any union that was out. Many comments were heard on the neatness of the display made by the boys.

I noticed a rather remarkable freak in an incandescent lamp several months ago, and thought it would be interesting to other workers, and besides I would like to hear the ideas of others about it.

I was changing some lamps in the basement of Iler's distillery warehouse. The basement was wired so that the lights could be turned on at either the elevator shaft or at the head of the stairway, but must be turned off at the same place from which they are turned on. Not knowing at the time how the place was wired, I went down to re-

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place some lamps and reached up to turn on the light, thinking it was turned off at the socket. The instant my hand touched the lamp it gave out a strong white glow. Of course I let go very suddenly. Receiving no shock, I touched it again, with the same result. Becoming curious, I took out the old lamp and replaced it with a new one, and still the same result. Then I tried all the lamps in the basement, and replacing them with new ones, I found all acted the same way. The glow was strong enough to distinguish the features of a helper standing a few feet away. My helper, on seeing it the second time, got out of there in very short order. The floor was of dirt, rammed hard, and was very dry, and a plank walk extended down the center from one end of the building to the other. On either side were stored barrels of alcohol, whisky, rum and other liquors. The ardent fluids were all in barrels, where they belonged, and none outside, as some of the boys might say.

Now, the point of discussion is: What is the cause of this phenomenon? I would like to see it discussed in the next WORKER. My opinion is that it must have been a static discharge from the converter, a 90-light oil-insulated Thomson-Houston make.

F. M. VAN DERVOORT,
Press Secretary No. 22.

WASHINGTON.

OCTOBER 11, 1893.

Editor Electrical Worker:

On Sept. 13th one of the Western Union Telegraph Company's wires got crossed with a trolley wire in Baltimore and set fire to the cupola in Washington. The fire occurred about 6 o'clock in the evening, and about 9 o'clock, while Bro. Joseph Ebert, together with some other linemen, were repairing the wires, Bro. Ebert got hold of the crossed wire and gave one cry for help and fell over among the wires. Bro. Phil. Deffer, hearing that cry, went to the rescue of Bro. Ebert and at the risk of his own life lashed him to the pole with a rope until the fire truck should arrive to raise a ladder among the wires. Upon its arrival Bro. Deffer took Bro. Ebert on his shoulders and carried him to the ground. Bro. Ebert was then removed to the Emergency Hospital, where the doctors examined him and found that he had been burned on both legs. They then bandaged up his legs and he was at work again on the morning of the 14th. A day or two afterwards he was laid up from the effects of his injuries, and has been unable to strike a lick since. Bro. Deffer, in going to the rescue of Bro. Ebert, performed one of those heroic acts that we seldom see in these days, and should receive one of the silver medals that are given by the Humane Society for acts of heroism like that performed by him. The Western Union Telegraph Company, through Mr. Mearean, general superintendent, will pay Bro. Ebert while he is sick, and also his doctor's bill. They have sent him \$40. Bros. Metzel, Collins, Watzel, Harrington, Man and Berger called on Bro. Ebert Sunday, Oct. 8th, and found him doing fairly well.

Bros. Berger and Metzel, the press secretary and ex-president of Local Union No. 26, made a trip to Baltimore with their wheels, and enjoyed a run in Baltimore and the surrounding country on Sunday morning, Oct. 1st, making a run of forty miles in about four hours.

Local Union No. 26 extends its thanks to Bro. Seavey, who paid for twenty-five tickets; also to Bro. Collins and Bro. Man, who each took 100 tickets and returned the money for them, thereby assisting in making the excursion of Electrical Union No. 26 a financial success. The Ticket Committee, through its chairman, extend their thanks to the brothers who gave their promise for tickets for the prompt manner in which they came forward and settled for the same, thereby aiding in making the excursion a great success.

The offices of vice-president and financial secretary were vacant. Bro. P. A. Deffer was elected vice-president and Bro. Geo. A. Malone was elected as financial secretary.

Since my last article to the WORKER two of our brothers, Man and Collins, have formed a co-partnership, with the firm name of Man, Collins & Co. We wish them success in this new undertaking, and hope that they may have plenty of work on hand always, so that they will not have to go back to journeymen's work again. The new firm will employ none but union men.

Mr. C. Schneider, of 1207 F Street, has secured the wiring of the Cosmos Club, corner Madison Place and H Street N. W. Keulling, of Pennsylvania Avenue N. W., has secured the new building of Hennenan, corner Seventh and H Streets N. W., for electric light, speaking tubes and electric bells. Both of these jobs will be done by union workmen.

In the November number I will be able to give the names of the union shops and some of the jobs that have been done by the firms before and since the Union was started.

Bro. Berger on Monday, Oct. 2nd, paid a visit to Local Union No. 27, where he was cordially received. On that occasion Local Union No. 27 put in two new lights, and No. 26 extends her greeting to No. 27 and wishes her God-speed in the work of the N. B. E. W. Bro. Berger had to leave the meeting early on account of taking the last night train for Washington.

Business is very slow in Washington. We advise brothers from other parts of the country to give Washington a wide berth, as there are a number of our brothers looking for work.

Bro. Geo. A. Malone, our genial Financial Secretary, has been wearing a broad smile on his face for the past two or three days, and seems two feet taller than usual. The cause is an addition to his family of a bouncing baby boy. Luck to you, Bro. George, with the young electrician, is the wish of the brothers of L. U. No. 26.

The storm of Friday night caused two of the wires of the U. S. Electric Light Co., passing the Cathedral of Scottish Rite A. A. Masons, located on G. St. N. W., to cross, and set fire to the cathedral, causing a damage of about \$2,000. The prompt action of the fire department prevented the entire loss of the building.

I will bring my letter to a close, as the brothers may get tired of seeing so much from Washington all the time, so I will pull the switch and open the circuit until November, 1893.

Yours in N. B. E. W.,

J. M. BERGER.

WASHINGTON.

OCTOBER 11, 1893.

To the Delegates to N. B. E. W.:

I submit the following as rules regulating apprentices in our trade, which I hope will meet with favor from you when in convention assembled.

The rapid influx of unskilled, incompetent and unprincipled men in our trade has had, of late years, a very depressing and injurious effect upon the electrical workers, and has had a tendency to degrade the standard of skill and to give no encouragement to young men to become apprentices and to learn the trade thoroughly; therefore, in the best interests of the electrical workers and contractors, we declare ourselves in favor of the following, viz.:

The indenturing of apprentices is the best means calculated to give that efficiency which it is so desirable an electrical worker should possess, and to give as a guarantee to the employers that some return will be made to them for a proper effort to turn out competent electrical workers; therefore, we direct that all local unions under the jurisdiction of the N. B. E. W. shall use every possible means, wherever practicable, to introduce the system of indenturing apprentices.

Any boy or person hereafter engaging himself to learn the electrical business shall be required to

serve a regular apprenticeship of four consecutive years, and shall not be considered an electrical worker unless he has complied with this rule, and at the end of which term the employer to give him a certificate that he has served the regular apprenticeship.

All boys who enter the electrical trade with the intention of learning the business must be held by an agreement, indenture or written contract for a term of four years, the above to be signed by the father, mother or guardian of the boy and the employer, both parties to have a copy of the contract.

When a contract has been made by a boy's father, mother or guardian and an employer for the boy to serve a certain term of years, he (the boy) shall on no pretense whatever leave the said employer and contract with another without the full and free consent of the first employer, his father, mother or guardian, unless there is just cause or that such change is made in consequence of the death or the relinquishment of business by the first employer; any apprentice so leaving shall not be permitted to work under the jurisdiction of any local union in the N. B. E. W., but shall be required to return to his employer and serve out his apprenticeship.

It is requested of each local union in the N. B. E. W. to make regulations limiting the number of apprentices to be employed in each shop or factory, one for such number of journeymen as may seem just to the employers, and all unions are recommended to admit to membership apprentices in the last year of their apprenticeship, to the end that, upon the expiration of their terms of apprenticeship, they may become acquainted with the workings of the N. B. E. W., and be better fitted to appreciate the privileges and obligations upon assuming full membership.

Respectfully submitted.

JNO. M. BERGER,
Press Secy. L. U. No. 26.

BALTIMORE, MD.

OCTOBER 1, 1893.

Editor Electrical Worker:

DEAR SIR—Local Union No. 27, of Baltimore, holds its regular meetings every Monday night, and I am glad to say that we are progressing in grand style. We have initiated several new members in the past month and we have several more applications for membership in at present, also cards from brothers from different locals, such as No. 1, No. 4 and No. 9. I am more than glad to see that the boys who have been holding out of our ranks are beginning to see what the Brotherhood is made of, and also the good that we do in helping and caring for the sick, or for the destitute families of a brother who has been so unfortunate as to be crippled for life or lost his life while performing his duty. This is not all; we are bound by a solemn promise to stand by one another when the strong arm of our foe is raised against us.

Last meeting night I was much impressed by a small speech delivered by good-natured Brother S. R. Wilcox. He said: "When you meet a brother on the street treat him kindly and say an encouraging word to him; don't pass him because he is not dressed as well as you."

This was but one of his many advices to the boys. I agree with him there, because I love true brotherly friendship, and when I have done a good turn for a brother who has just come to town in search of work I feel just as light at heart as he does. For every kind word cheerfully spoken to a brother workman there is a kind of inspiration which gives him a light heart and a good opinion of the brother that has aided him with his little mite.

It seems really to make hope brighter and his burden lighter. It is also true of all kinds of pleasant greetings; they cheer the discouraged and rest the tired ones, and somehow make the wheels of life run more smoothly. Be liberal with him and let no worthy brother pass by unaided. Help to cheer him by your smiles and cheerful words. It is a grand

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lesson for all of us to learn, and after we have all learned it our work will be crowned with success; so let us stick together and build our union with a solid foundation, for building a union, to my mind, is like building a house; if the foundation is not there the house will fall to the ground.

All the new linemen who are coming into town are turning in their cards to this local and I am glad to say that not one of the boys who have come to Baltimore in search of work had to go away without getting a slice of the pie. We have in the neighborhood of 75 to 100 linemen here. There are a good many of them out of work, and still they come. But let them come; there is a little work here yet, and while that lasts we will share with them. However, I must say work is beginning to slack up. The Brush Electric Company, in a few days, will lay off several linemen. J. G. White, electrical engineers, are laying off men. They have nearly completed all their lines for the Baltimore Traction Company.

E. D. Evans & Co., contractors, are about to start stringing wire for the City Passenger Railroad Company.

Hughes & Rigby, electrical engineers and contractors, are about to start to build two roads, about forty miles in all.

This is about all the work that I know of at present.

If any of the boys come to Baltimore in search of work they should stop at the Farmers' Hotel. You will meet with many of the boys, for that is headquarters for all linemen. The proprietor, A. H. Cole, endeavors to make it pleasant for all that stop at his hotel, but they must be good union men or they can not stop there. The first thing he does is to ask them for their traveling cards, and in case they have none or can't show that they are union men he will tell them to travel on.

I will close, wishing you great success with your valuable journal.

I remain yours truly,

THOS. ASPINWALL,
Press Secretary,
1007 Forrest Place, Baltimore, Md.

BALTIMORE, MD.

OCTOBER 1, 1893.

Editor Electrical Worker:

DEAR SIR—I struck Baltimore a few days ago on my way to Alabama, and a better set of boys than in No. 27 I never met.

While in this town one of the strangest union incidents occurred to me, and one which I should hardly believe unless I knew the narrator. I went into the Farmers' House on Forrest street, and when I stated that I was a wireman the genial proprietor, A. H. Cole, asked for my working card and informed me that he would have none but union men there. About twenty of the boys hang out at this house and all the linemen make it their rendezvous and keep things lively.

Through the kindness and hospitality of Brother Tommy Aspinwall, Press Secretary of Local Union No. 27, and Brothers Jay and Burtzell, late of No. 9, but now of 27, I have been induced to believe (1st) that there is no trade but ours, and (2nd) that the man with the true sense of unionism at heart is the only true man all the world over.

Work is on the improve here, and Baltimore itself looks as though it meant business.

There is noticeable here, more probably on account of the large floating element of old-time wiremen, a most intense and practical feeling of loyalty and unionism, and I hope that No. 27 will take a tumble while they are in the humor and put a walking delegate in the field, and then Baltimore may become a center in the South for the spread of that grand movement of enlightenment and freedom for not only the electrical mechanic, but for every man who since Adam is doomed to live by the sweat of his brow.

Hygienically speaking, that curse was a good

thing, for work is good, and if we were not given any work at all wouldn't linemen and wiremen kick?

Hoping to write again with good news from the South, I remain yours in circuit.

ARTHUR HOOTON.

PHILADELPHIA.

OCTOBER 9, 1893.

Editor Electrical Worker:

As this issue of the journal will be the last one before the convention I think a fit subject to write about is the convention. First of all, I hope small unions will take advantage of Sec. 7, Art. XX, so that when the convention meets the delegates will actually represent the views and wishes of a majority of all the members of the brotherhood. Let me urge the unions that do not intend to send delegates, to affiliate themselves with a union in close proximity to them.

Bro. Kelly, in the last issue of the journal, offered some very fine suggestions of changes to the constitution, and it would be well for delegates to think them over before going to Cleveland, as some or all of them will surely come up for consideration.

Electrical work in this vicinity has a brighter outlook at present than it has had for many a day. The trolley work is beginning to help some of the boys who were caught in the lay-off some time ago. The Thirteenth and Fifteenth Street line is working a day and night force at present. Fourth and Eighth St. line is ready to start the pole work on its mammoth system; all of this work makes work for inside men, who are kept busy wiring cars in the shops of the car companies; and again the Western Union Company are doing quite a little line work. One foreman had to actually go out and hunt for climbers—a rare thing in Philadelphia for a few months past. The light companies are working somewhere near their old number of men again. All in all the out-look for the winter is not so bad as it has been for a few weeks past, but let me say that we still have quite a few idle men and I would warn electrical workers on the move to "just keep moving" when they come this way as we must look out for our own brothers first.

Bro. C. R. Botsford of No. 1 has secured a position as night foreman for one of the largest electrical contracting firms of this city. At present Bro. Botsford has a "gang" on the Thirteenth and Fifteenth Street trolley line, and of course is doing all he can towards making the job a union one. He informs me that he now has five union men with him. We expect to receive Bro. B.'s card at our next meeting, and I am sure that he, with his fellow-workmen, will be a valuable addition to No. 28.

Bro. Jesse Rodgers has been "crossed up" with typhoid fever for a few weeks past, but the doctor says that he has him "cleared" and expects to have him up and doing soon. Well, "Pud," we have been there and can feel for you.

Our sick list has dwindled down to two at present, but as one will not be beneficial for a month or so, we expect to increase our sick benefit fund again.

A large sized rumor reached me a few days ago that one of our most esteemed brothers contemplates making a very serious move in a few days. Inviting the boys up to his house for a bit of a party was a pretty good blind, but it wouldn't keep out the light. Well, Bro. Duffy, in behalf of No. 28 I wish you life-long success.

Bro. Chas. Sherman has taken out a traveling card and started westward, ho, mainly to see the fair. We were sorry to lose the "Kid," as he was a regular "light" on meeting nights, and a jolly, whole-souled young man. He is a first-class worker and any who meet him will confer a favor on No. 28 by doing him a good turn.

Fraternally yours,

J. W. FITZPATRICK,
Press Secretary.

TRENTON, N. J.

OCTOBER 8, 1893.

Editor Electrical Worker:

The brothers here have been kicking because they have not seen anything about our local in the WORKER for some time, but that was our fault, not yours. We are weak here yet, but hope to receive some new members before long, as there are a number of electrical workers here that don't belong to any union. Mr. Editor, let me warn the brothers against a lineman, or bum, that goes by the name of Billy Sutherland or Sullivan. He struck Trenton last week in search of work, as he said, but instead he came to steal tools. There is a brother looking for him with a pair of connectors in his hand and I would not like to be in Billy's boots if he finds him.

The City Railway has got the right-of-way to build an extension to their electric road, but I think it will be a week or two before they begin work.

Sending my regards to all the brothers, I remain
Fraternally yours,

JAS. HARRIS,
Acting Press Secy.

JERSEY CITY.

OCTOBER 5th, 1893.

Editor Electrical Worker:

As I failed to write anything in time for the last issue until too late for publication, I will try and be in time for this month. There is not much news to interest the brothers. Work here is slack; several members out of work, including your humble servant.

The work on the lines of the Consolidated Traction Company is being pushed forward very rapidly, and in a short time horse cars will be a thing of the past in this city.

Local No. 31 is preparing for a grand electrical exhibition and ball to be given at Woods' Hall on Thursday evening, December 21st, which promises to surpass anything ever seen or attempted in this city before. The affair is in the hands of the following committee: Brothers Humphrey, Bailey, Trumbull, Watsen, Battles, Hall and Dooley, who extend an invitation to members of all locals in adjoining cities, or any members of the brotherhood who may be in this section on that date. The members of 31, or at least a great many of them, are still complaining that they do not receive their journal, and some of them say they have not seen a copy for months, and wonder where the fault lies? There is also much complaining among the members in regard to the action taken by Local No. 3 of New York City, whereby our inside wiremen are not allowed to work in said city, as our card is not recognized there, and unless an inside wireman can produce a card from Local No. 3 he can not work for any contractor in the combine. What the brothers wish to know is this: Are we not all brothers together fighting for the same cause and bound to help one another as far as we can? All of our inside wiremen have been in this local since it was organized and reside in this city, and naturally they wish to stay with this local. There is nothing said about the members of No. 3 coming over here and working; for, at the present time, there are a number of them at work in two large buildings in this city, which are being erected on our main street. Still, the members of Local 31 are debarred from working in New York City, as well as the members from Brooklyn, Paterson and Newark, a proceeding which looks to the members of these locals as a very selfish and unbrotherly action.

The N. Y. and N. J. Telephone Company are very busy fitting up their new office, and have a swarm of men at work putting in the new switchboards, and I am happy to say they are all union men employed by the Western Electric Company of New York City.

Well, I must close now, before you "open the line" on me, but in conclusion I would say to any

of our brothers in the West who are thinking of coming this way looking for work, to stay where they are for the present at least, as work is very scarce, and brothers here are searching in vain. With well wishes for the union and its interesting Journal, I remain,

Yours, fraternally,
JAMES M. HUMPHREY,
Press Secretary,
L. U., No. 31.

BROOKLYN, N. Y.

OCT. 1, 1893.

Editor Electrical Worker:

The first annual picnic given by the Line Construction Department of the Brooklyn Heights Railroad Company, September 9th, was a grand success in every particular. I send you a brief account of how the day was spent and results of contests, which will doubtless interest the readers of the WORKER.

At 11:30 a. m. the employees, with numerous friends, began gathering at the company's headquarters, and forming in line at 1 o'clock, marched to the Coney Island train, which was in waiting for them.

The procession numbered about four hundred, headed by the Bugle Fife and Drum Corps, making a very creditable parade. Arriving at the depot the number was considerably increased by wives and sweethearts, making altogether as jolly a crowd as ever went out for a day's sport.

A short run of eight miles and we have reached Coney Island.

The first on the programme was line throwing, in which there were twelve contestants. The line over which they were to throw was first stretched at forty feet, then at forty-eight feet, and last at sixty feet. Mr. Geo. B. Shaffer alone succeeded in throwing over it, and with such comparative ease that he received quite an ovation from the spectators. He was awarded a handsome clock valued at \$45.00.

Pole climbing came next and was participated in by twelve contestants. The tree from which the pole was cut must have been a splendid specimen of its kind, for at sixty-seven feet above the ground there was no perceptible diminution in its diameter (1½ feet.) The Stars and Stripes were planted at the top, and an electric bell, to be rung by the climbers, was also placed on top.

Here, again, Mr. Shaffer displayed his skill and won a beautiful gold watch valued at \$75.00.

Mr. Shaffer must be congratulated on his graceful climbing. His time was twenty-seven and three-fifths seconds.

Thomas Burke won second prize, a solid-silver shaving mug. Time, twenty-eight seconds. He is a very fast climber and was only two-fifths of a second slower than Mr. Shaffer.

Wm. Condon won third prize, a handsome gold medal. His time was thirty-one and three-fifths seconds. Mr. Condon is a very skillful climber and has good wind.

The last of the contests was a tug-of-war—J. Gorman's team against Mr. F. Berriault's team. Mr. Berriault's team won, and each of the winners received a handsome gold medal beautifully engraved.

My account of this outing would be incomplete if I did not add in connection with the contests that every winner neither drinks nor smokes, and as a result, I am told, that upon learning of this fact a number of the "boys" who do both have, using a familiar expression, "sworn off."

Readers, draw your own conclusions.

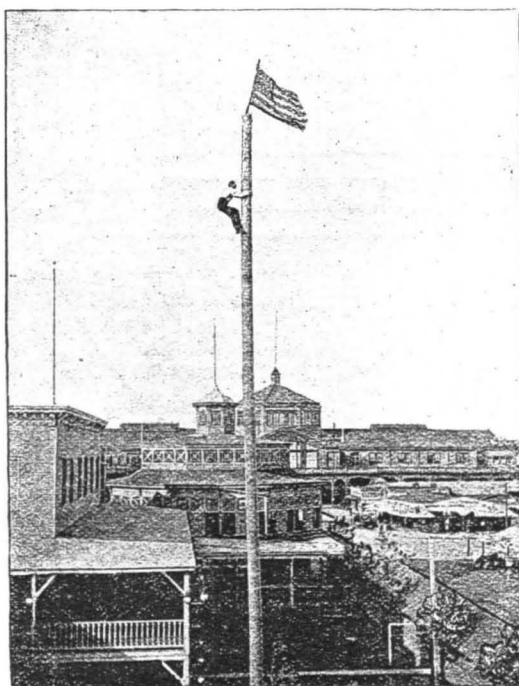
This closed the contests and the crowd then repaired to the hall, where music and dancing was the order of the evening. Supper was announced at 1:30 a. m., after which the first annual picnic of the Line Construction Department of the Brooklyn Heights Railroad Company came to a close.

In honor to the employees let it be said they carried home the reputation of being a very respect-

able, orderly crowd; more so than usually gathers at Coney Island.

The members of the various committees are to be congratulated on the success of their first picnic. May their future attempts meet with as great success is the wish of

"THE PHOTO. FIEND."



Climbing Contest on Pole 67 Feet High at Coney Island, Sept. 9th, 1893. Geo. B. Shaffer First Prize. Time, 27 3/5 Seconds.

BOSTON, MASS.

OCTOBER 13th, 1893.

Editor Electrical Worker:

Our last meeting was on Wednesday. We had a large meeting and considerable interest; also some kicking, as usual. We had several new brothers added to our union. They still come but not as fast as we read of in other locals. But we hope in time to have No. 35 at the head, as Boston and vicinity has electrical workers enough employed to have a membership of one thousand, and we think in time we will have them all. Our board of trustees made their report after auditing the books of the treasurer and financial secretary. They put in a few long sessions, being up several evenings as late as 2 A. M., but had a good surprise. The auditing being at Bro. Barker's residence, he gave the boys a great spread. After the other boys heard of it they all wished they were at the affair. There was a rumor that Bros. Grant and Johnson had a long debate on electrical affairs. Talk about your senators, especially Senator Allen, debating fifteen hours, why they are not in it with the above two brothers. But it came to a climax and all is over, and the subject has been dropped.

Bro. Murray was elected inspector. He is a dandy and won't allow the wrong pass-word to go by. Bro. Johnson, treasurer, tendered his resignation on account of other business, and it was accepted, sorry to say, as he has given the best of service. After giving fifteen months of his time to the union a donation was offered, but he refused to accept anything outside of a vote of thanks, which was given and a hearty one too.

There were four W. U. linemen layed off here. I understand they made out vouchers for a month's report for hire of teams and could not account for signatures on the bill. Well, they were not union linemen, so it is their own fault and they could not have better luck. They were all trouble hunters and old employees. We have but three W. U. union men and the W. U. have in Boston about twenty-five steady men, and we think it is about time for the others to join us. Also Postal Telegraph and Boston District have a large force, and

only a few union men. I hope after the next issue of the ELECTRICAL WORKER you will send one to each company: Postal Telegraph, 234 Division W. U. Tel., 109 State Street, and Boston District, 38 Broad Street. Address same to line department. It may do some good and encourage them to join our union.

Our delegates to the Building Trades Council have not given us proper attention. I hope they will attend meetings and give the union more information.

The telegraph operators of Boston gave a tournament last Tuesday evening, and it created considerable excitement here among some of the plug operators. There are a few good ones; they are Jack Gatins, the sport, and our man, called by the ladies McAuliff; they got fifty a piece and a medal. Understand they soaked the medals, and we can guess where the \$50 has gone. Now, as the operators have showed their skill, the linemen of Boston are going to do the same, and they expect to go into it further. For a start they are going to give three prizes for best climbers. The first prize is \$50 in gold; 2nd, gold watch; 3rd, gold medal. There are to be three heats, the pole to be seventy feet; best time and neatest climber, both going up and down. We have some dandies, and one is Curley Sheehan, and another is Joe Paul, Postal's ground man, and several others. Entries now open to all union men. Address Climber, Local No. 35, 987 Washington Street. This is the talk of Boston, among the linemen. Tickets now issued; admission, 50 cents. There will be other sports, such as running five miles, one mile walk, five mile bike race, 3-legged race, sack race, throwing heavy and light hammers, and lots of other sport. We expect to have a set of soft gloves in case of any argument. This affair is to come off Thanksgiving day at Congress Street grounds, at 2 P. M. The foot ball game will draw the big crowd. Capt. Johnson has his gang, so has Capt. Grant; lots of money is about to change hands, as odds are on Bro. Johnson. Will state winners in December issue.

Where is President Miller? Boston would like to hear from him.

Yours Fraternally,
T. R. MELVILLE,
Press Secretary.

NEW YORK.

SEPTEMBER 25, 1893.

Editor Electrical Worker:

In current number of ELECTRICAL WORKER I read with interest the very able article on frictional electricity by Bro. Berger, of No. 26, which reminded me of an interesting half hour I had with the same current.

I went out to repair a break on a metallic District Telegraph circuit, and found both legs of circuit cut away where they cross Eighth Avenue and One Hundred and Twenty-third Street. As the New York Elevated Railroad runs on Eighth Avenue, I closed circuit temporarily on one side of the avenue and prepared to run two new legs across.

I got wires across O. K. Span was about 175 feet. Used No. 14 iron wire cotton and paraffined covered. Fastened same in two hole blocks with rubber hook. Both legs were open on each side of the avenue. I had a messenger boy helping. He jumped suddenly, threw down the end of the wire he was holding and commenced to berate me soundly for putting up a job on him to give him a "shock." He refused point-blank to get killed by electricity without first "doing his man," and no amount of argument could induce him to touch the wire again. In vain I showed him both ends were open and no current could possibly flow, and placed wires to my tongue to prove it. I did so several times, when suddenly I jerked myself together. I received quite a smart "tap." Well, to say I was puzzled but poorly expresses it; but I determined to find out what it meant. I held one

end of the wire while investigating, and every two or three minutes would feel a shock; then I found I only got it when a train passed the building and just as the smokestack of the engine passed under the wires puffing vigorously. I did not have much time to experiment, and as my wires were the only ones on the building, I could not cut any others to experiment farther. You can bet I would have, though, had there been any. After closing circuit, I did not feel the current again. The day was cloudy but not damp. The smokestack passed about four feet below the wires.

I also found another way to get frictional electricity, and had quite a lot of fun out of same. Some of the brothers may know of it, but I have found very few who do.

While working in a private house putting in gas lighting I found if I walked briskly across the floor and touched the chandelier, a spark would jump with a slight snapping sound from my hand to the chandelier. After experimenting quietly for a while, I called to my pal and started on a trot around the room. He thought I had a fit or the "pink monkeys." I stopped suddenly in front of him and pointed my finger at the tip of his nose. Snap! his head flew back and mouth and eyes opened wide in amazement. After explaining it to him he had all the carpenters and painters down trotting around that parlor carpet, much to the damage of same.

I found a heavy brussels or velvet carpet best for experimenting on, but weather must be dry and clear.

Yours fraternally,

J. J. LEWIS.

P. S.—By the way, no brother in 36 objected in the least to assessment of 25c. When I first subscribed I wondered how the paper was going to pay. By all means increase cost of same. I have given up *Electrical World*, after subscribing one year. The fifty-two numbers it issues is nowhere with three numbers of *ELECTRICAL WORKER*. I am not alone in this statement.

All the brothers ask is that they get the paper. This is my first number (September issue), except one I got at meeting room.

Respectfully, etc.,

J. J. LEWIS.

HARTFORD, CONN.

SEPT. 20th, 1893.

Editor Electrical Worker:

You are probably waiting anxiously to hear from Local No. 37. The progress we are making is made up of trials, tribulations and troubles, but nevertheless we are battling bravely against them. Our picnic and athletic games, booked for August 29th, we were obliged to postpone on account of the cyclone that struck this city on that date. We had extensively advertised our picnic, but when day broke all linemen employed in the city were seen boarding trains in different directions to repair the broken kite strings that were down in surrounding towns. Consequently we were obliged to postpone it until Friday, Sept. 1st. Trouble doesn't come single-handed, so we had to contend with another stormy day, and it was not such a success as it would have been had the weather been more favorable. The feature of the picnic was the pole-climbing contest, which was participated in by fifteen contestants, all members of the brotherhood. Bro. Geo. Dugan, better known as Fog, won this contest, and carried off the honors by climbing a 60-foot pole up and down in 18 seconds; and Bro. Joseph Meloney was second, coming down a quarter of a second slower than Fog. The prize for this contest was a lineman's nickle-plated complete outfit. The scabs and long-shoremen employed by the S. N. E. Telephone Co. have all purchased Antique bicycles, and are the center of attraction on the streets. I enclose you a list of names of the men who sign the contract issued by the superintendent of this company, who has the unmitigated "gall" to say that a man in the employ of his company can not join a labor

organization. Hardy Lohnes, Wm. Hurd, Champ-lin Weeks, David Demar, and one Frisbie sacrificed their honor by signing a contract that they would not affiliate with any labor union, after becoming members of this union and solemnly promised that they would stand faithfully by us, and then knife us after pretending to be our friends. As these are facts, brothers, we desire every brother throughout this broad land to know it. Well, every dog has his day, but not his way. We may be able to retaliate at no distant day. As we are all working for the union, and hope we are not taking up too much space in your valuable journal, we will now hang our telephone on the hook, but you will hear more on this subject later on, in the sweet by-and-by. D. F. C.

NOTE.—Bro. Patrick Kerrigan, as near as we can ascertain, was murdered in Bridgeport, Connecticut, on Saturday, Sept. 8th, during a bar-room fight. His relatives have no claim on this order, as he was in arrears to this union at the time he met his death for five months' dues. It is to be regretted that brothers get so careless as to forget that they belong to a union, and lose all the benefits thereof. I desire to add further that societies and unions were organized for the protection of ourselves and families. Let this be a lesson to brothers to shun saloons and remember their obligations to themselves and those that are depending on them.

ST. JOSEPH, MO.

OCT. 10th, 1893.

Editor Electrical Worker:

We are having a little boom in our town at present in the way of reconstruction, which aids in replenishing the pockets of some of our floating brothers, who are now employed by the Telephone Company replacing the wires mutilated by the great fire which took place here on the 25th ult. The boys exerted themselves to the best possible advantage and soon succeeded in getting the wires up temporarily, thus enabling everybody to talk again. The Peoples' Street Railway Company suffered quite a loss by having a portion of their main lead burned to the ground, but the boys, under the supervision of "R. M. Martin," worked faithfully and soon had their circuits working temporarily, sufficient to supply illumination to the greater portion of the city.

Bro. Waller of the city plant was unlucky in his usual way, escaping the fire on all sides. The telegraph companies were very fortunate and escaped with slight injuries.

Bro. James Lyons has returned from Chicago and gives very discouraging reports of the "Windy City."

Bros. R. W. Stockwell and J. B. Scott are spectators at the World's Fair this month. Nuff sed, H. T. SULLIVAN.

ROCHESTER, N. Y.

OCTOBER 8, 1893.

Editor Electrical Worker:

Well, here we are with another month gone, trying to think up something for the craft, and it is a trying thing to one like me, who scarcely knows his A, B, C's, but I do the best I can and a fellow can't do more. Things are about the same as when I wrote last. We are still in the swim, more than holding our own. Last month we took in ten new members, so you see we are on the increase all the time. The boys of our craft who have remained out so long are pulling in line one by one. When I look over the *WORKER* and see the dissatisfaction that reigns supreme I can't help compare them with our union and note the difference. While they have dissatisfaction we have harmony in our ranks. We work on one principle, and that is this: Whatever comes up in one of our meetings, whatever discussions we have among us, when the meeting is over it ceases right there, and we go home with the one thought in our minds, and that is this, "With justice for all, with malice toward none; united we stand, divided we

fall." Now a word to the kickers and cranky fault finders: If things in your local don't go to suit, don't croak, don't kick, but settle your grievances with the ballot-box, or at your elections. If your officers don't do their duty why drop them and put in more competent men. Don't stay away from meeting and come around once in two or three months and try and run everything your own way. Study the constitution and by-laws, and study Davy Crockett's motto. Let this be your motto: "Be sure you are right, then go ahead."

The boys are full of the convention and we elect our delegate next meeting. I expect a good hot fight. Well, let the best man win. At any rate we will try and be in line Nov. 13th.

The electrical work is just the same; we hold our own; we have a very few men out of work. The underground work is nearly completed.

Now, I have a duty to perform that I very much dislike to do; but for the interest of our brotherhood and for justice to all the fraternity I would not do it. But as Press Secretary I feel compelled to warn all brothers against the Ryan Brothers. They claim to hail from Detroit. These two men drifted into this town about three months ago. The police arrested them for tramps, but we got them out of jail and put them to work. How did they repay us? They packed their grips and gave us the slip, owing \$15 board bills. Now, no union should take those brothers in as long as this charge remains against them. One of the brothers, Frank Ryan, took a pair of spurs from Mr. John Martin, foreman Bell Telephone Company. So, brothers keep your eyes open for this class of men; weed them out; they are a detriment to us; they only make our road rough and thorny. The outside world would point them out and say: "Are these the men who compose the brotherhood?"

It is my sad duty to report the death of the old time linemen, Mr. Patrick Trainor, who died at St. Mary's Hospital last week. He was sick for eighteen months. He had a hard struggle until death relieved him of his sufferings. Pat, like all of us, had his faults, but for all that he was a good fellow. He has chased his last trouble; he has found his last ground, and let us hope the angels will open the great circuit above and let him in to help close it. Let us sing with the poet these lines: Our lives are albums written through, With good or bad, with false or true; And when the angels search the record of our years God grant they will meet the good with smiles and blot the bad with tears.

Fraternally,

H. W. SHERMAN.

BLOOMINGTON, ILL.

OCT. 10, 1893.

Editor Electrical Worker:

As I missed writing for your paper last month, I will try and get in a few words this time. I am very busy, as I work at night, and the moon has failed to come round, so I am working long hours, but I will do better after next month, as I will be better off then. All the boys were out to the meeting Sunday. Bro. Lloyd told us the World's Fair was all O K, and says Chicago is too large for him. Bro. George is the smallest member, but he trims 115 Wood arc lamps every day, only taking six hours, and keeps the globes clean and rod smooth. While big John Gray is busy, he finds time to talk to the girls; look out, John. But if you could see Arnold and his girl of a Sunday afternoon you would think Art was the only boy in Bloomington. We are going to a wedding soon; hurry up A. J., Snyder is next; he is getting so old he will join the band soon. Fred Harris is going to the Fair, and if things don't suit him he is going to have them changed. If anyone has a girl for sale send her to C. F. Snyder. J. T. Lloyd is buying all the old poles he can get, and asks all the members to come down and help make wood of them; he has a "nerve." Bro. Chas. Gabbert is in Chicago this

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week. He did take his wife with him. Right, Chas. Jim Gray spends his evenings at home with his wife. So will A. J. A. after a while. O. Beckman and W. McFadden also spend their evenings at home, happy to be able to do so when work is over. Bro. McFadden is with the street car company, and is a good all round man. Bro. Lloyd has moved to the country and will farm next summer. Harry Durham is still O K; we will say he is doing fine. Bro. Lemons is going on the police force next spring, and have "Reform" for Bloomington. But, John, you know the boys. As I am asked by the Press Secretary to write for him, I know he will not ask me to write again. Several boys have come here and we have given them a hand in some way.

Yours till next,

No. 49.

SCRANTON, PA.

OCTOBER 10th, 1893.

Editor Electrical Worker:

Another month of dull time has passed by and 51 finds itself in about the same standing as it was at our last writing.

At our last meeting we put two additional lights on the circuit and I hope they will burn as bright as any and somewhat better than a few of their predecessors.

The Secretary says that he will have to drop two or three names from roll call if the members don't come to time and pay their dues. He has already paid per capita tax out of his own pocket for these men. Brothers, you ought to be ashamed for letting yourselves drop behind in this way. We all know it is not due to you being miserly or grabbing for the almighty dollar, but we do know it is due to your carelessness or lack of interest in upholding the union. Pay up like men and help to make your local a success. Keep on falling behind and you can rest assured that you will cause it to be a failure.

I hardly think 51 will send a delegate to the convention, as we are organized but a short time and are scarcely familiar with our constitution yet. But whatever changes may be made by that body will be gladly accepted by us as coming from wiser and more experienced members.

There are still a few linemen outside our ranks who are waiting to see which of them will be the first to join our union. They are all willing to become members, but just because so and so is not a member they would rather wait a while longer. Brothers, bear in mind that those men met and talked with our Grand President, H. Miller, on his first appearance in this city, and there and then were unanimous almost to a man that this local union should be organized. Bro. Miller has performed his part of that agreement and organized 51 on a substantial basis. Now, I think it is high time that those men show their colors and quit bluffing, as we are getting tired of it. If you don't want to be union men say so, and we will be through with you.

Some members say that Bro. Jno. Collins' weary smile is due to the arrival of a baby girl. It is too bad, John, as I know you would prefer a climber, but there are good times coming, and perhaps some day you will get your wish.

Bro. Frank Conley of No. 13, Cincinnati, O., who says he deposited his card at Wilkesbarre, was a visitor at our last meeting.

Yours fraternally,

J. O'LAUGHLIN,

Press Secretary.

PEORIA, ILL.

OCT. 10, 1893.

Editor Electrical Worker:

Again I will attempt to write a few lines for the journal, but at the beginning I will say that electrical news of any description is hard to obtain, so I will confine myself to praising the deeds of a former member of No. 54, who is now a fugitive from justice, and whose name, or alias, is Tom

Cunningham. He came to Peoria a few months ago claiming he was from Ottawa, Ill. At our meetings he always showed himself to be well posted on lodge matters. He was appointed on a committee to get badges for labor day, and as each member was to pay for his badge when he got it Cunningham had all the money, amounting to \$15.00. Upon being pressed by the other two on the committee for the money, he arranged a time and place where he would turn it over, but when the time came our dear and affectionate friend had left for parts unknown, no doubt for the benefit of his health. We think he has gone south and we would receive any news that could be obtained of him with much pleasure. He is about 27 years old, weighs 160 pounds, five feet, seven or eight inches in height, of slight build, light blue eyes, which are set in rather deeply, long, sharp nose, and hair and mustache of no color. I am aware this is not a perfect description of him; at present it is the best at hand. But for your next issue I will send you a cut of him. I will also inform you of anything new concerning him which we may find out. Hoping that our brothers throughout the country will watch for this man, I remain,

N. J. CUNNINGHAM,

Press Secretary.

DES MOINES, IA.

OCTOBER 13th, 1893.

Editor Electrical Worker:

I am a little late in sending my correspondence this time, but I hope it will get there in due time.

No. 55 is getting along very nicely; about eight or nine members taken in last meeting. It made all the boys feel good to hear so many names read and they did all in their power to make it an interesting meeting. We at last have some by-laws. The committee was a little slow, but I will give them credit for very good laws. We have a committee looking for a hall for us. We intend to have a nice place to take our brothers to who come to visit us. And we will also have papers and books for the boys to pass their idle time. We expect to give a ball before long, and if any of you happen in our city at the time we would be very glad to have you come up, for I know you will have a nice time. The boys know how to take care of a brother.

On last meeting night we connected one of the lamps of the firm of Day & Barge into the grand circuit, and although the other one is not in, we expect to have him before long. So brothers, remember and help them all you can.

Well, as this machine is not working very good to-night, I will throw the belt.

Yours fraternally,

L. M. SIMPSON,

Press Secretary.

SALT LAKE CITY.

OCTOBER 11th, 1893.

Editor Electrical Worker:

No. 57 is struggling hard to keep in existence. With nearly all its members out of work it is a hard battle, but we believe there is a brighter future for us and we will stick to the Brotherhood.

We regret to announce the death of Bro. J. O. Allen, which occurred Sept. 15th, of typhoid pneumonia.

Bro. Frank Baker and Bro. McKinley, of St. Louis, stopped over in this city a few days last month. They were on their way to California.

The Telephone Company is trying hard to reduce the wages of linemen from \$3 to \$2 per day. None of their old men will accept it. Several strangers started in, but only worked an hour or so, when some of the boys stated the case to them and they quit.

We wish to inform all wiremen and linemen to stay away from Salt Lake City, as there is no work nor any in sight.

I am very much afraid that No. 57 will not be represented at the National Convention next

month, unless the delegate goes on the unlimited stock train. Hoping my next letter will be a more lengthy one and of a more cheerful nature, I remain,

Yours, fraternally,

CHAS. C. CADY.

LANCASTER, PA.

OCTOBER, 1893.

Editor Electrical Worker:

Local No. 58 was organized July 15th by G. P. Henry Miller. The matter had been discussed for some time among the boys, which ended by the employes of different companies holding a meeting and a permanent organization was effected.

Our local is getting along slowly, but is on a fair road to prosperity. Our first meetings were held in a store room, but matters did not run very smoothly; we had several open circuits and trouble along the line; but now we are at home in our new lodge room, which is one of the finest in our city. It is situated in the central part of the city, at No. 56 North Queen Street, over Shoub & Burns' shoe store. We will be pleased to have all visiting brothers call and see us on Thursday evening. We are always glad to see a visitor, so don't fail to drop in and see us.

We have several inside wiremen and a few linemen out of employment at present. If you find a vacant job, I wish you would let me know, as they are anxious to get work as soon as possible.

We had a fire several weeks ago in the basement of a dry goods store, caused by an electric wire being too close to a gas pipe, causing the wire to become grounded. Loss very slight.

The Citizens' Electric Light, Heat & Power Company has commenced operations on its new plant. They have given contracts for station, boilers, pole lines, etc. They are progressing nicely.

This being my first attempt at writing for the journal, I will close for the present and open the circuit until some future time.

Yours fraternally,

TRIMMER.

SAN ANTONIO, TEX.

OCTOBER 12th, 1893.

Editor Electrical Worker:

Since my last letter to your valuable journal, L. U. No. 60, has been pushing to the front despite the hard times. New offices have been opened up on the line and other important points are clamoring for direct communication with the great center of distribution. The remarks contained in the editorials, also the letter from our Grand President, deserve much thought and conservative action in the coming convention. Wiser heads than mine will be able to digest these very important subjects. But as No. 60 will be unable to send a delegate, I can not refrain from saying a few words. Great effort should be made to enlist all the good men of the craft throughout the country. All honorable means should be used to enroll them where they rightly belong, under the banner of the N. B. E. W. of A. A strict apprentice system is necessary and should be inaugurated. A uniform initiation fee would be beneficial for various reasons, and with the experience of old and successful organizations for an example. Biennial conventions would surely answer all our purposes. The saving to our treasuries can be better applied in other ways. To your correspondent it certainly appears that the National Brotherhood's source of revenue is very meagre and should be increased. It has been a source of much speculation among our members how it was possible for the editor to furnish as attractive a paper, one filled with so much instructive and interesting matter to the craft as the ELECTRICAL WORKER is for the pitiful sum of 25 cents per member.

During the last month the San Antonio Street Railway Company has absorbed the Citizens' Company. Their plant now consists of a battery of six boilers, four 250 H.-P. Armington & Simms engines, running four eight-car capacity genera-

tors, operating seventy-five miles of road. Our vice president, Bro. Jno. Lindquist, has charge of the outside work for this company, and Bro. Frank Van Ryser winds up the business in the shed. The worst feature of the consolidation is that no more men are employed now than before. Bro. J. F. Wellage is the proud papa of a great big lineman. Bro. D. C. Sprecher is also entertaining a pretty little visitor at his home; but—well, Clarence, we're still your friend, and in sympathy must say we are sorry it wasn't a boy. The wife of Bro. Frank Butcher, who has been very sick, but is now convalescent, will leave for her old home in Michigan in a few days, in the hope of improving her health. Her continued illness has been a trying ordeal to Frank. The happy smile had vanished from his cheerful face, but is now gradually returning. It is rumored that Bro. Nat Neely will soon desert his bachelor friends and join the Benedicts. I can assure the fair charmer she has caught a prize.

Fraternally,
JNO. MALONEY,
Press Secretary.

LOS ANGELES, CAL.

OCTOBER 2, 1893.

Editor Electrical Worker:

This has been California's Labor Day, and by proclamation of the Governor of our State, a legal holiday; yet its observance has not been as general as was hoped for by the friends of labor. Efforts were made in some quarters for celebrating it which resulted in a very pleasant excursion and picnic at Redondo Beach and another over the "Mountain Electric Railway" to Mt. Lowe; yet a vast majority of laboring men and women stood at their posts and performed their usual work, many of them not appreciating the fact that a new holiday had been offered them. Business was carried on without interruption in all parts of the city with but few exceptions, and the city was treated to a genuine surprise in seeing many of its public officials performing the duties of their respective offices, among whom was the high jurist of the United States Circuit Court, who ordered deported five of our "Celestial competitors." I hope that the fact of the order being made on a legal holiday will have no further bearing on the matter.

Electrically we are at a standstill, no new work of any consequence is being done. A new electric light plant is about completed at Santa Monica. It is a small plant, having placed only one T. & H. dynamo with a capacity of seven hundred lamps. Brother Smith, of our union, has done good service for the company and has alike benefited himself while at this busy little seaport, having increased his avoirdupois to nearly 200 pounds and his moustache until it is fully as long and as shaggy as a Norwegian's eyebrow.

Some interest has been created in San Diego over the success in laying a submarine conductor to connect the trolleys in that city with those on the Coronado Peninsula. It was laid across the Bay of San Diego and is about one and a half miles in length.

Brother C. P. Lofthouse, our president, is in San Diego moving the Telephone Exchange in that city.

Brothers Yearsley, McClure and your humble servant have just returned from Santa Barbara, where we have been doing some new work for the phone. It is understood that Brother McClure left some impressions there that he never made with his hooks.

Brother Buchanan now struts about "surreptitiously erect;" his wife is the cause. I understand that some inducements have been offered him to call the boy "Pete."

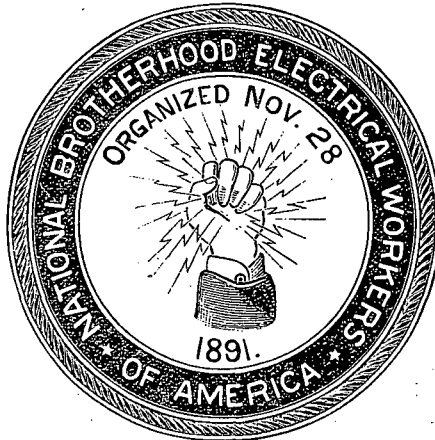
Brothers Tubman and McFarlane have joined issues to do all kinds of inside work, and you don't want to forget that they can do it.

In self-defense Brother Barnes takes the American eagle.

One initiation and one admission by card is our report for September, with better prospects for October.

Fraternally,
F. E. PETERS,
Press Secretary.

DIRECTORY OF LOCAL UNIONS.



(Secretaries will please furnish the necessary information to make this directory complete. Note that the time and place of meeting, the name of the President, the names and address of the Recording and Financial Secretaries are required.)

- No. 1, St. Louis, Mo.—Meets every Tuesday evening at 305½ Olive st. John Hissrich, Pres.; J. C. Geiger, R. S., 315 Chestnut st.; W. G. Frey, F. S., 1110 N. 13th st.
- No. 2, Milwaukee, Wis.—Meets 1st and 3d Wednesday at 526 Chestnut st. F. G. Raymond, Pres.; M. J. Quirk, R. S., 87 27th st.; J. A. Page, F. S., 443 Marshall st.
- No. 3, New York, N. Y.—Meets every Thursday evening at Clarendon Hall, 114 E. Thirteenth st. Second and fourth Thursdays are devoted to lectures and instructions on practical electrical subjects. J. P. McMahon, Pres.; Geo. H. Middleton, R. S., 45 Clinton Place; Clarence Ingham, F. S., 211 E. Ninety-sixth st.
- No. 4, New Orleans, La.—Meets 1st and 3d Wednesday at Odd Fellows' Hall. Wm. Moake, Pres.; J. C. Bradley, R. S., Custom House and Napoleon sts.; J. J. Vives, F. S., 210 S. Rampart st.
- No. 5, Nashville, Tenn.—A. H. Prange, Pres.; Ed Farewell, R. S., 1306 N. Market st.; E. W. Morrison, F. S., 308 N. Summer st.
- No. 6, Memphis, Tenn.—E. J. Gray, Secretary, 20 Goscoe st.
- No. 7, Springfield, Mass.—Meets 1st and 3d Monday at Winkler's Hall, Bridge st. John F. Hoyt, Pres.; F. Wyatt, R. S., Hotel Glenham; S. F. Cameron, F. S., 281 Main st.
- No. 8, Toledo, O.—Meets every Thursday at 223 Summit st. J. B. Smith, Pres.; Wm. Welsh, R. S., 614 Monroe st.; T. H. Nevitt, F. S., 1606 Vance st.
- No. 9, Chicago, Ill.—Meets every Saturday at 199 E. Randolph st. C. L. White, Pres.; Gus Sauers, R. S., 116 Wells st.; J. H. Capps, F. S., 1209 Wabash ave.
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The plant that is being erected at the falls of the Willamette will be the greatest electric power plant in the United States. The work is of the finest, and it will pay a person to visit the works and see the future of electricity in Oregon. The first installment will be equal to the power of 16,200 horses, and five times this amount of power can be controlled by the works now being placed in position.

Attorney-General Hensel of Pennsylvania, after hearing arguments pro and con by leading lawyers, has refused the writ of *quo warranto* requested by certain citizens of Gettysburg to deprive the trolley line of its franchises on the battlefield. The attorney-general decided all the points involved in favor of the trolley company.

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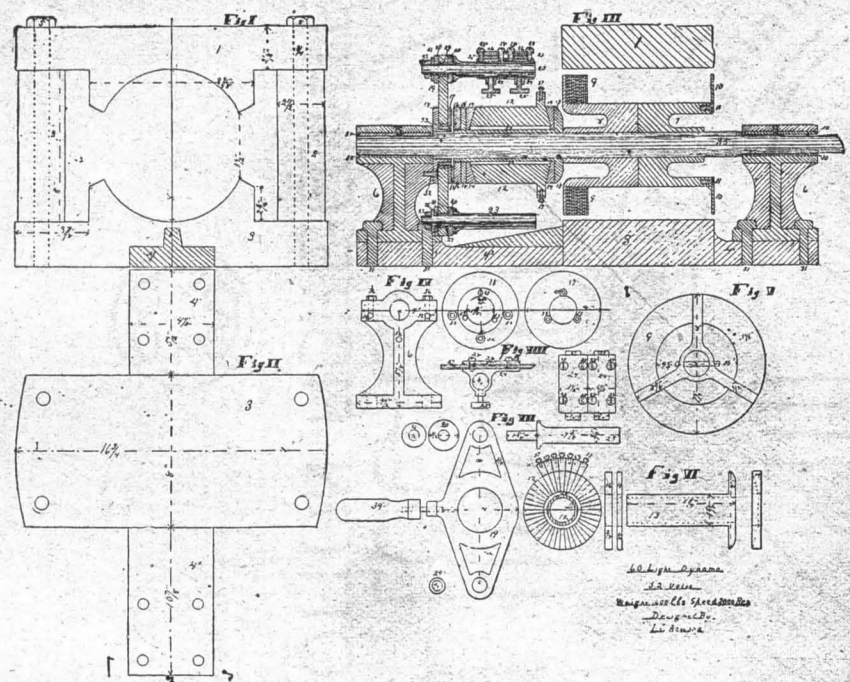
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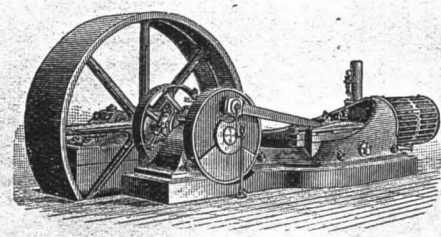
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